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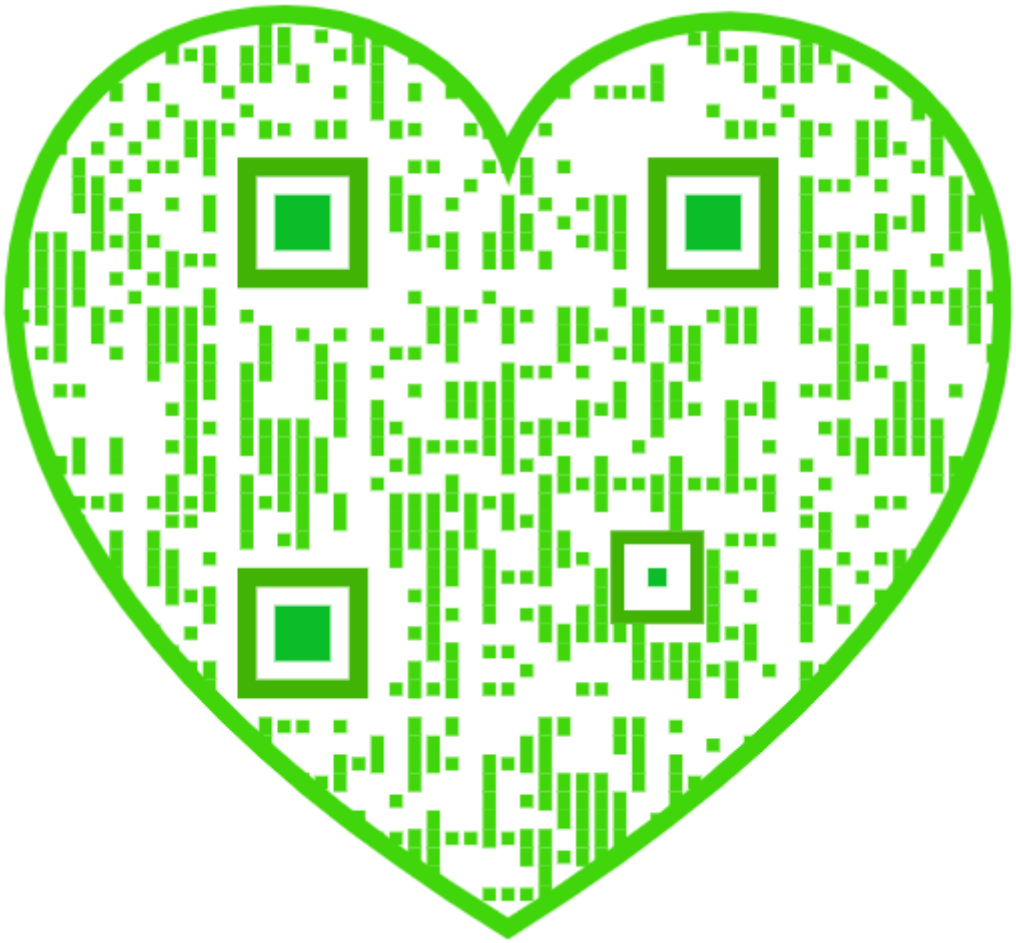

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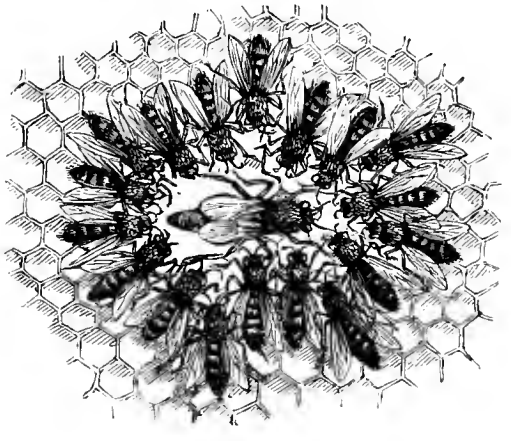

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INDEX.

Abbott, Mr., his frame-block, 6, 7; his apiary at Hanwell, 7; his cheap hives, 8; at the South Lincolnshire Horticultural Show, 62, 64; at Sandy, Beds, 89; at Glasgow, 118; his exhibit of hives and apiarian apparatus at the Crystal Palace Show, 113, 114; his prize hives, 114; his prize frame-bar hive, 1875, 92, 132, 133, 148, 149, 168, 169; his honey knife, 133; his eccentric extractor, 167, 168; his straw storifyer, 185; his safety syrup can, 229
Abnormal bees, 70
Adapting-board, 3, 4; perforated zinc for, 31, 46, 69, 100
African honey-bees, 7
Algeria, 182, 207
Alien queens, introduction of, 137
America, bee-keeping in, 31; large amount of honey produced in, *ib.*; apiarian intelligence from, 54, 102
American Beekeeper's Magazine, 170
Anatomia dell' Ape, by Cleriei, 186
Anatomie d'Abeille, 17, 164
Antennæ of the bee, 224
Ants, 131; prevention of their entrance into hives, 226
Apicultural puzzle, an, 212
Apieultural dictionary, in Italy, 102
Apiculture, ignorance of, 125
Apiarian notes, 49, 50
April, 219, 220
Artificial food, 3
Artificial pollen, 14, 18, 33, 170, 208, 215, 220; chemical elements of, 225
Artificial swarming, 18, 19; from skeps and bar-frame hives, 19
Aspect for hives, 19, 220
Aston's bee-trap, 42; his extractor, 117
August, weather in, 59
Australian meat-tins, utility of, in apiaries, 222
Autumn stimulative food, 165
Bagshaw, T., his exhibit of honey drinks, 116; his recipe for metheglin, 134
Balance, preserving the, 230
Balm of Gilead, 215
Bar-frame hives, supering in, 24
Barley-sugar, its utility as winter food, 131
Beauvoys, Dr. de, his method of taking honey, 164
Bee-books, new, 32, 81, 82
Bee company, proposed, 93, 125
Bee clustering in winter, 112
Bee-culture in France and Germany, 164
Bee-feeding, method of, 124, 210
Bee flowers, plants, seeds, and trees, 183, 199, 208, 209, 229
Bee-guild, the proposed, 203
Bee-houses, 81
Bee-inoculation, 48
Bee-keepers, proposed county Associations of, 93
Bee-keepers' short hand, 176
Bee-keeping, its neglect in England, 1; its cultivation in Germany, 1, 7; new books on, 13, 32; value of large populations of bees in, 25; old-fashioned, 34; hints to cottagers on, 72; in Birmingham, 69; in Cornwall, *ib.*; in Canada, 100; lecture on, 118; in a cottage, 173; Mrs. Tupper's prize essay on, 186–189, 204–206; and the coming show at Birmingham, 212
Bee life, saving, 73, 100
Bee-lore, the Laureate's, 74
Bee-management, treatises on, required, 76
Bee, natural history of the, 189, 190, 223; anatomy of the, 224; a rival to the, 219, 225
Bee-pipe, the smoker's, 223
Bee prospects, 1875, 95
Bee-puzzle, a, 52
Bee Preserver, the, 216
Bee-quieting, vesuvians useful for, 172
Bee-quieter, 116, 117, 172, 216
Bee-stands, grounds in front and round, 196
Bee-stings, cure for, 162
Bee-writers, experience of, 192
Bees, swarming and hiving, 2, 3; comb-building, 3; highway robbery by, 10; remarkable swarms of, 28; building horizontally, 34, 35; out for a picnic, 41, 73; before the magistrates, 45; their longevity, 53, 161, 162; their preparations before swarming, 54; their gnawing propensity, 56; how prevented from fighting, *ib.*; their removal to the moors, 67, 101; their freaks, 76; natural history of, 78; in a barrel, 79; in skeps, 81; their line of flight, 87; at fruit and flower shows, 88; a holiday among the, 96; in an attic, 107; requisite amount of food, 107; do they eat fruit? 139, 160; do they use soot? 161; in Camden Town, 164, 177; utilising condemned, 141; their peculiarities, 173; in confinement, 174; burying, 178; our, 181; shall we improve our? 193, 194; casting out rival queens, 195; how to feed without being annoyed with robber-bees, 197; water for, 212; mortality among, 211; confining during snow, 214; on visiting terms, 228; keep of, 230
Bennett, Mr., paper by, on the natural history of the bee, 223, 224
Berkshire bee-hive, the, 7
Berlepsch, Baron von, on the Gravenhorst hive, 30; on Egyptian bees, *ib.*; on the peculiarities of a bee in Lunenburgh, &c. 77n
Birmingham bee-keeping, 69
Bligh, Hon. and Rev. H., his suggestion as to prizes, 23; special prize offered by him, 105
Block for making sectional supers, 92
Borage, 42, 215, 229
Bottom distance-keepers, 81
Breeding, 222
Brighton and Sussex natural history society, 224
British Bee Journal, 1, 19, 31, 51, 210; end of the third volume, 219
British Bee-keepers' Association, 11, 16, 50, 118, 145, 181, 194, 206, 212, 223; schedule of prizes and prize fund, 20, 21, 23, 38; annual general meeting, 118; its utility questioned, 194; answer to Mr. Carr's letter by hon. secretary, 212
Brood in combs, 107; sealed and unsealed, 127
Buckwheat, 42
Caledonian Apiarian Society, its meetings and prizes, 15, 39, 45, 57, 83, 145, 151, 190, 223; its show at Glasgow, 118–120
Californian bee-keeping, 81
Canada, bee-keeping in, 100
Carbolic acid as a bee-quieter, 141
Cardiff hives, 47
Carr, W., his improvements in queen-cages, 118; his exhibit of objects illustrating the natural history of the honey-bee, 118, 134, 151
Casts, late, 50; how to prevent, 177
Chairmaker's cane useful for making guide-sheets, 4, 5
Cheshire, F., his adapting-boards, 4; his vulcanite plates, 15n, 116; his hive, 27; his gauge for guides, 56; his prize drone-trap, 116; his method of forming impressed wax-guides for frames, 117
Circulation of air in hives, 118
Cleaver, E. L., his appointment of hon. sec. to the British Bee-keepers' Association, 118
Cockburn, Mr., his apiary, 96
Comb-building impulse, 3
Combs, crooked, made straight, 7; straight, 11; measurement of distance between the centres of, 47, 48; production of, exhaustive to bees, 105; extracting honey from old, 222
Coming show at Crystal Palace, suggestions, &c., for the, 16, 17, 53, 65, 93, 94
Cori, M., his experience with Cyprian bees, 193, 209
Corn-flower, 215
Cornish bee-keeping, 68
Corrections, 35
Correspondents, advice to, 64; hints to, 151
Cottagers, interesting the, in bee-keeping, 1, 45
Cottagers' hive, 1875, 133
County associations, formation of, 121, 136, 150, 153 170, 171, 172
Cowan, Mr., his treatment of stocks, 111, 112, 115; his prize supers, 115; how obtained, *ib.*; his bee-quieter, 116, 117; his extractors, 117; his exhibits, 133, 134; his smoker, 134; his extractor, 'the rapid,' 150
Crocus, 14, 33, 215
Crooked combs, 82
Crystal Palace Show, bee and honey, prospects of, 60, 85; its contents, 112–118; letters respecting, 135, 136
Cupid and the bee, 170
Cyprian bees, Mr. Carr's experience with, 193; importation of, to America, 194; suggestion towards their introduction into England, *ib.*; notes on, 209, 210
Cyanide of potassium, a cure for bee-stings, 163; its utility in destroying wasps' nests, *ib.*
Dalmatian bees, 210
Damaged combs in skeps, repair of, 27
December, 147
Desborough, J. G., his exhibit of meed, 116; his new method of supering, 184, 232
Devon and Exeter, association for, 137, 150; rules of, 155
Diagrams for lectures, 55
Didsbury flower show, bees at, 64
Disease or poison? 50
Distance-guides, 3, 44, 47, 66, 122, 211, 227
District secretaries, hint to, 212
Dorset, Association for, 122, 151
Drake, Mr., his ten-bar frame, 116
Driving bees, 54
Drones, presence of, desirable for artificial swarming, 55; how to be dealt with, 56

Drone-comb, 107, 130, 131
Drone-traps, exhibit of, 116
Draining honey, 82
Dundee, Association in, 151, 186, 207
Dysentery, cure for, 147; in skeps, 166
Dzierzon, M., professor of bee-keeping in Germany, 7
East of Scotland's Bee-keepers' Association, 207
Echoes from the hives, 18, 54, *et passim*; from Germany, 77, 78, 157
Eggs, transference of, from one comb to another, 11, 74–76, 98, 99, 124, 125, 159, 160; the sexes of, 173
Egyptian bees, 14, 29, 30, 99, 100
Encaged queens, bees feeding, 138
Experience, 52
Extracting honey, 24, 74
Extractor, advantages of, 37
Extractors, Walton's, 46, 117; Cowan's, King's, Starling's, 'Novice's,' 117; positions of combs in, 165
February, 183
Feeding bees, in spring and autumn, 37; one aspect of, 140; apparatus for, 142; advice as to, 199, 221
Feeding-stage, mode of using, 107; graduated, 195
Feeding-bottles, new, 34; covers for, 222
Forthcoming show, Mr. Symington's letter, 96
Foul brood in hives, 36, 107; cure of, 155, 156; essay on, 178-181; on, 192, 193; indications of, 231
Fox, G., large super exhibited by him, 115; disqualified by the judges, *ib.*; letters respecting, 136, 152, 153, 172
Frame-hives, hiving in, 2
Frame-block, Mr. Hooker's, 6; Mr. Abbott's, 6
Frame-bar hive, the new, 1875, 32
Frame-cutting gauge, 97
Frames, fixing of the, 3; firmness of, 15; distance-guides for, 44; improvement of, 34; positions of, 81; suggestions as to supplying, 198; fitting with empty combs, 199; sizes of American, 202; of English, 221; without hives, manufacture of, 203
France, 17, 30, 57, 79, 102, 126, 164, 198
Freeman, Mr., his distance-guides, 232
Fruit and lime blossoms, interval between, 42
Fumigation, Mr. Rusbridge's method, 13
Fumigator, a useful, 60
Fungus, 107
Gauge, for guides and frames, 25; frame-cutting, 97
Gentle feeding, 15
Germany, echoes from, 28, 157; apiarian intelligence from, 53, 79, 102, 198
Giotto hives, 197, 221
Glasgow, apicultural show at, 118–120; bees at the natural history society of, 223
Glass a protection from wind and cold, 130
Glass-hives, 52, 67
Glennie, Rev. J. D., his suggestions, 114
Gloves, 215
Grantham Horticultural Show and bees, 4, 62, 72
Gravenhorst, Mr., his straw-hives, 8, 29, 113, 177; on the division and reunion of stocks, 28, 77, 78
Guide-sheets, modes of fixing, 4, 5
Guides for frames, 4
Gyrdwoyn, M., his *Anatomie d'Abeille*, 17, 164
Hanwell Asylum and schools, encouragement given by, to bee-keeping, 45
Harbison, J. S., his extensive business in bees and honey, 31
Helston flower show, 64
Herb-gardens and no bees, 125, 126
Hereford and district, association for, 151
Hint, a, as to the sale of honey, 71
Hive construction, 73, 100; shape, 67, 122
Hives, echoes from, 35, 80, 102, 163, 126, 127, 143, 164, 165, 182, 198, 213
Hives, and hive-makers, 184
Hives with four legs, hiving in, 5, 6; aspect for, 19, 220; improvement of, 37; state of, 47; cheap, 81; frame-bar, 1875, 132, 133; outer cases for cheap, 157, 158; prize, proposed addition to, 175; makeshift, 220; stands for, 222
Hiving, in skeps, 2; in frame hives, *ib.*; in hives with four legs, 5, 6
Honey, 16; from a foul-brood hive, not to be used as food for bees, 18; introduction of, to schools, 45; season, 48; value of, 82; what is? 99; extracting, from old combs, 222; in Italy, 230
Honey-bees other than Ligurians and blacks, 115
Honey-combs, packing, 98
Honey-fair, the, 23, 30, 31
Honey harvest, in Sussex, 95, 96; in South Devon, 95; in Kent, *ib.*
Honey-knife, Abbott's, 133
Hooker, J. W., improvements in hives, suggestions by, 114; his exhibits, 114, 117, 118
Hopes, 229
Horticultural shows, bee exhibitions at, 72, 73
Humble-bees, 78; for New Zealand, 143
Hungarian bees, 209
Hunt, Mr., his prize Lecture on bee-keeping, 118
Hybrids, superiority of, 55
Hunter, J., Carniolian bees exhibited by, 115
Ignorance or jealousy? 210
Improved cottage Woodbury hives, 32
Indian bee-culture, 37
'Infant food,' as an artificial pollen, 32
Innocent pilferer, the, 197
Italy, apiarian intelligence from, 17, 35, 53, 102, 143, 182, 198
Ivy honey, 51
Jackson, F. R., his exhibit of honey, 116
January, 165–167
Jones, Mrs., her exhibit of honey-cakes, 116
Judges, 194; their awards, 152, 172
June, 24
July, weather in, 41
'Keep,' the, of a bee, 230
King, James, his Sherrington extractor, 25, 117
Kobler, Mr., his mode of increasing swarms, 18, 19
Late casts, 41
Ligurian and black bees, 44, 53, 76; purity of, 50, 56; superiority of, 54; experience with, 124, 176; their powers for work, 124; are they hardier than blacks? 158, 159
Ligurian, Egyptian and Cyprian bees, 164
Ligurian queens, and black drones, 19; introduction of, 26, 36, 175
Ligurianizing, new method of, 158
Lincolnshire, County Association for, 131, 137, 150, 153; rules of, 153, 154
Line of flight of bees, 87
Local errors respecting bees, 144
Long, Mr., his honeycomb foundation, 169, 170
Makeshift hives, 220
Manchester Bee and Honey Exhibition, 21; abandonment of, 66
Manipulating-room at the Crystal Palace, 23
Manipulation of bees, 103
March, 201; inclement weather in, 219
May, 1–4; weather in, 23
Melipona, a rival to the bee, 224
Melladew, E., special prize offered by him, 115
Mellilot clover, 102, 184, 208, 230
Metheglin, 134
Michigan Bee-keepers' Association, 191, 192
Mignonette, 215, 229
Mortality among bees, 56
Neighbour and Sons, their divisional supers, 24, 49, 117; cheap Pettigrew hive, 114; Smyrnian and Cyprian bees, 115; bee-feeder, 116; exhibit of honey, 116
New frame bar, experience with, 52
New bee, the spelling, 173
New York State Fair, 30, 31
New Zealand, humble-bees for, 143
Nielsen, Jorgen, his patent bee-hive, 8–10
November, 129
'Novice,' his extractor, 117
Nucleus for queen-raising, 11; formation of, 55
October, 111
Old-fashioned bee-keeping, 69
Pagden, Mrs., exhibition of hives, 114, 115
Pasturage for bees, 229
Perforated zinc for adapters, 31, 46, 69, 100
Pettigrew challenge, 51; his *Handy-book*, 13
Pettitt, W., his exhibits, 114
Phacelia, 42, 215, 229
Pollen, combs, 107; its composition, 164; for early spring feeding, 197
Poppies, 229
Preparation, 220
Prize fund for 1875, 39
Prize super of honey, condition of, 136
Propolis, 190; pomatum made from, 230
Queen, a missing, 52; a, and her subjects laid low, 73; how to be handled, 55; flying in and out of the hive, 216
Queen-bee, fecundity of, 3; fertility of, how determined, 55
Queen-cages, experience with, 55; Danish, 25, 26; Abbott's, 26; Rev. G. Raynor's, *ib.*
Queenlessness, indications of, 220
Queen-raising, 232
Queen-wasps, 227
Queens, two, in a hive, 46; young, 73; difficulty in maintaining their purity, 56; bees feeding encaged, 90; introduction of, to queenless stocks, 91, 142; abnormal, 123; loss of, 123, 124; at swarming time, 127; and their progeny, 142; age of, 151
Queries and replies, 127, 198, 214, *et passim*
Quilt under adapting-board, 3; its utility, 3, 11, 12, 161, 215, 216, 229; *v.* crown-board, 11; material of, 232
Rags steeped in saltpetre, utility of, in quieting bees, 55
'Renfrewshire' bee-keeper, value of his letters on apiculture in Scotland, 164
Robber-bees, 12
Roofs for hives, 130
Rousseau and his bees, 197
Rusbridge, Mr., his mode of treatment, 13; his book on Bee-keeping, 13, 14; his exhibit of honey, 116
Salicylic acid, its utility in the cure of foul-brood, 155; its general uses, 181
Salt, its use to bees, 164

Salter's spring balance, 164
Sand-bees, 19
Sandy, the bee show at, 89
Scott, Rev. F. P., his exhibit of honey, 115; description of his exhibit, 134
Scutellaris, the, 224
Season, the, of 1875, 139
Sectional supers, 24; block for, 92
Sedez boxes, 232
Self-placing angular distance-guide, 227
September, 85, 86
Sherrington frame-bar hive, 25; extractor, 117
Shrivelled wings, 53
Sibertswold hive, 32
Skep inquisitor, a, 43
Skeps, hiving in, 2; taking honey from, 196, 212
Slow feeding, 97, 98, 111
Smith, C. P., on the natural history of the bee, 189, 224
Smith, C. W., his Carr-Stewarton, 114
Smoker's bee-pipe, 223
Smyrnian bees, 209
Somerset, superstition about bees in, 64; bees and shows in, 124, 125; county association for, 132, 150
South Lincolnshire horticultural show, bees at, 62, 64
Spelling-bee, the, 173
Spiders and their eggs, 131
Spray producer, 222
Staffordshire, season in, 164
Stamford, out-door exhibition of bees at, 120
Standard frame, 149, 150, 172, 173, 195, 196, 202, 208, 226
Starling's honey-extractor and frame-hives, 117
Stewarton hive, new, 31; experience with, 143
Stewarton system, the, 125, 140
Stimulative feeding, 12, 86, 183, 215
Sting-poison, sensations caused by, 70, 98
St. John Werobley Almanac, 182
Stocks, division and subsequent reunion of, 28; dividing and multiplying, 34; causes for the dwindling of, 36; removal of, to the moors, 53, 72; taking up, 60; value of, 216; loss of, 217; dissimilarity of results from, *ib.*; sending by rail, how to be packed, 232
Straightening combs, 37
Strasburg and Alsace, apicultural show at, 102
Straw storifier, 185
Supering, preparation for, 24; new method of, 184, 210, 211, 231, 234
Supers, preparation of, 12; unicomb, 16; sectional, *ib.*; swarming from, 32, 49; advice as to the arrangement of, 36; removing, 42; ridding them of bees, 43; driving bees into, 49; trap for clearing, *ib.*; removing brood from, 60, 61; proper time for placing, over a hive, 198
Superstition, 199
Swarming, 2; from supers, 32, 49; in May, 24; or non-swarming, 104, 105
Swarm, mode of catching a, 49; an untimely, 225
Swarms, hiving of, in skeps and frame-hives, 2; treatment of, after hiving, 2, 3; feeding, 3, 4; preparing for, 184
Switzerland, 79
Symington, R., his method of procuring honey, 24
Syrup-can, safety, 222
Syrup, made with moist sugar, 164; composition of, 183
Systems of bee-keeping, relative value of, 81
Telescopic supers, 71
Transferring, 91, 92; stocks from skeps to Cottage hives, 36; to bar-frame hives, 56; apparatus for, 61; best time for, 232
Tupper, Mrs., her Prize essay on bee-keeping, 186, 204
Tyrol, bees in the, 122
Unicomb hives, wintering bees in, 8
Uncle Walter's hive, 81
Uniting swarms, 37, 107, 127
Untimely swarm, 225, 231
Various items, 53
Ventilation of hives, 12, 210
Vesuvians useful for bee-quieting, 172
Walton's extractor, 46, 66, 117; his prize honey, 116
Want and Sale Column, 21, *et passim*
Wasps, their natural history, 78; death to, 94, 227
Wasps' nests, 131; destruction of, 210
Wax from combs in foul hives, 18
Wax-moth, 131
Wax-guides, 215; by tapes not advisable, 127
Wax-sheets, 18, 62, 74, 96; manufacture of, 4; blocks for impressing, 5; utility of full-depth, 10; impressing, 33, 37; embossed, *ib.*; plates for making, 46; suggestion for impressing, 50
Wax, 96
Weak stocks, union of, 87
Weather, the, 74
West of England Apiarian Society, 131, 154; rules of, 154, 155
What next? 92
White clover, 215
Winter aconite, 33
Winter, best covering for frames, 10, 11; food for, 131; passages, in hives, 112; provision for bees, 174; queen uniting in, 166; ventilation in, 47
Wintering bees, 148; in unicomb hives, 8; packing for the, 130
Wood, J. S., his allotment hive, 114; his exhibit of phacelia seed, 118; his apparatus for laying wax-guides, ib.
Worker-bees in queen-cells, 96
Worker-cells elongated for drones, 56
Yorkshire, 151

CONTRIBUTORS.

A. C., 33, 122
A. E. B H., 173
Allen, James, 136
Alpha, 93
Anderson, A., 31
Anderson, A. J., 96
Apis mellifica, 30
Bagshaw, T., 66, 134, 136
Bassano, W., 11, 98
Bligh, Henry, 135, 152
B. M. B., 15, 98, 125
Briscoe, J. E., 210
Brunton, D. B., 46
Brym, 213
Camaschella, J., 172, 173
Cardiff Bee-Master, a, 47, 66, 140
Carr, W., 68, 101, 139, 194, 196, 229
C. E. F., 210
Clarke, A. J., 161
Cleaver, E. L., 212
Country Doctor, a, 28, 29, 157, 209
C. T., 93, 136, 153, 171, 212
D. D. B., 68
Desborough, J. G., 8, 49, 172, 208
Debōrah, 162
Devon, 32
Drinkall, J., 52
Edwards, C. E., 16
Edwards, J. E., 177
F. L., 34, 50, 67, 99, 142
Fox, G., 95
Freeman, W., 97, 211
Gee, W., 70
Gell, F., 194, 212
Goddard, T. W., 94
Godfrey, R. R., 137, 153
Greatheed, W., 197
Great Britain, 197
Griffin, W. N., 137
Hampshire Bee-keeper, a, 48, 71
Harland, C. J., 160
Hill, E. B., 69
H. M., 98
Inquirer, 32, 53
J. D., 52
Jenner-Fust, H., 125, 158, 161, 172, 211, 228
J. H., 100, 158, 195, 228
J. R., 135
J. S. (Arbroath), 11, 100, 123, 161, 175, 195, 225
J. W., 50, 66
Kendall, Jahez, 196
Kirsten, J. G., 7, 71, 177, 211
Lady Bee-keeper, a, 98
Lake Lancashire Bee-keeper, a, 124
Lanarkshire Bee-keeper, 10, 159, 179, 192
Leominster, 32
Lyne, C., 157
Lyon, F., 51
M. A. H., 34
Melissa, 13
Mid-Lincolnshire Bee-keeper, 95, 122, 173
Murphy, R. R., 34
Nicolson, Robert, 48
Novice, 94, 122
Oldham, E. H., 228
One of Ours, 98
P. of Warwick, 16, 34, 208
Pennell, D. W., 154
Pettitt, W. J., 173
Philips, P. H., 174
Poole, O., 31, 49, 69, 93, 97, 141, 142, 193, 226
Prestonkirk, 53
Punnett, W. C., 95
Px., 52
Quilt, 11
Raitt, W., 231
Raynor, George, 138, 141
Recte et Suaviter, 172
Renfrewshire Bee-keeper, 33, 138, 139, 140
Roberts, T., 72
Rusbridge, A., 12, 13, 16, 48, 69, 95, 195, 229
Sadler, J., 7
Scott, F. T., 134
Sibert-on-the-Wold, 32
Smith, C. J., 123, 227
S. T., 51
Stevens, T. H., 175
Stracey, C. J., 197
Stuart, R., 11, 71
Sydserff, T. B., 178, 211
Symington, R., 65, 152
Tabram, G. F., 142
Tauntonian, 124, 178
Taylor, W. P., 100
T. J., 53
Tuck, H., 208
Walker, E., jun., 48
Walton, J., 173
Walpole, E., 51
Warwickshire Bee-keeper, a, 46
Webb, A. T., 100
Whiston, W. D., 197
Whithorne, A., 124, 176
Wilkie, John, 15
Wilson, W. J., 70
W. J. F., 50
Wood, J. S., 8, 14, 155, 176, 208, 225, 226
Worcestershire, 34
Wrigley, J., 196, 212
W. S. C., 142
Yorkshire Moors, 50, 124
Y. Z., 174

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Editorial, Notices, &c.

TO OUR READERS.

In commencing the Third Volume of the *British Bee Journal*, we beg leave to tender to our correspondents, subscribers, and friends, our most earnest thanks for the cordial and substantial support which they have afforded us in our endeavours to promote the culture of bees; and we venture to hope that the course we have hitherto pursued will ensure a long continuance of their favour. It is now two years since, with much diffidence, we ventured to launch our little bark in the service of the public, and without experience in journalism; trusting solely to the necessity for such a vessel for the collection and conveyance of new ideas and facts, and having only the interests of bee-culture in view, with truth as our guiding-star, we have been enabled to sail through straits and over shallows without difficulty. At the end of our second voyage we came safely into port with a full cargo, a host of passengers, a well-tried and experienced crew, and our ship well found. Not only has 'Our Journal,' as bee-keepers delight to consider it, brought the choicest experiences from foreign lands to enrich the understanding of our native bee-keepers, but, grappling with the old bee-hulks, Superstition and Prejudice, loosening her canvas, and making all sail, she has towed them out of the waters of darkness and ignorance in which they were *lying*, into the wide open sea of public opinion, where, in sight of the Crystal Palace lighthouse, and in the full glare of a noonday sun, they were boarded by her gallant crew, cut down to the water's edge, and left waterlogged and for ever untenable. During its voyages 'Our Journal' touches at twelve different ports, receives and despatches its own mails, exhibits samples of its crew's handiwork, introduces improvements from all quarters of the globe, stoutly resists imposture and chicanery, gives every honest man a good berth and every rogue a wide one, and never sails under false colours. To the youthful aspirant for bee fame it is a training-ship, to the able bee-man it is a store-ship; it is always at the service of the explorer and discoverer and to the land-shark pirate it is a vessel of war.

Thus may we figuratively describe the *British Bee Journal* and its objects. It is essentially the bee-keepers' journal; its columns have ever been open to bee-keepers, that they might record their opinions, wants, experiences, and facts; and although we do not always coincide with the views expressed, we give all a fair hearing, interfering only when opinions expressed are likely to lead amateur bee-keepers into error.

And now, as we start on another voyage, we respectfully, yet cordially, invite all interested in bee-culture to join us, and whether as crew or passengers to help us in forwarding the good and great work which has been so successfully begun. Bee-keeping has been a much-neglected industry; let it be so no more. A vast interest has been created in the subject, a powerful association formed, and the machinery set in motion for raising apiculture to a position worthy the attention and encouragement of the State, as a means of relieving the needy, and improving the condition of our cottagers. In Germany, as will be seen by a letter from the pen of an esteemed correspondent, bee-keeping is a branch of the education enforced by the State, and is taught there in the national and other schools. Why should it not be so here?

Subscriptions to the *Journal* are first, second, and third class. First class are those who subscribe half-a-guinea per annum, who are entitled to immediate replies by post to their queries; second class, those who subscribe six shillings per annum, and whose queries can only be replied to through the columns of the *Journal;* and third, clubs of cottagers, each to consist of not less than six, the subscription will be four shillings and sixpence per annum from each member.

This last is in lieu of a previous arrangement, by which double numbers of the *Journal*, &c., were forwarded for single full subscriptions. Cottagers are supposed to be working men who receive daily wages.

MAY.

May is traditionally the month for swarming, and while we hope the present may prove so,

we cannot but remember how often the bright promise of a genial April has been blighted by a return of the rigorous weather of March, and the poor bees kept within doors and starved while the blossoms were passing away. Last year swarming as a rule was delayed until July, although in the early spring the hopes of the bee-keeper were raised to the highest, and a fine honey year confidently anticipated, and it is possible that this season may be equally delusive. Should a return of cold weather confine the bees to their domiciles for a few consecutive days, they should be fed, not lavishly so as to enable them to fill their brood-nest with syrup, but just sufficiently to keep up the queen's propensity for egg-laying, which always slackens when there is no ingathering of honey or pollen.

Swarming and Hiving.—Swarming is a phenomenon in bee-keeping, the law of which is little understood, no one being able to tell the precise day or hour when a first swarm will issue. It is known that overcrowding usually precedes swarming, but that it is not the actual cause may be inferred, from the fact that overcrowded bees will often 'lounge' about in heaps outside the hive for many days *consecutively*, yet suddenly, as if having determined not to swarm, they will resume work as if nothing had ever interfered with their domestic comfort. Good reasons can be assigned for this proceeding, but they will not explain why the overcrowded hive did not swarm. In other cases, hives apparently overcrowded, and their bees lounging inactively outside the hive, will continue so, while a busy hive will suddenly swarm out; and, although these singularities may be accounted for afterwards, their solution will not enable one to state with certainty when a colony will swarm naturally. In our own experience, the swarming mania has been developed under circumstances singularly various, the swarms issuing late in July, and consisting of the queen and barely a teacupful of bees; in other cases similar phenomena have occurred in October, the former, probably, through a sudden influx of honey stimulating, yet limiting, the queen's powers of oviposition, and in the latter through the practice of rapid feeding, which we hope we have succeeded in proving to be fallacious. Many think the presence of drones in the hive essential to swarming; but, if so, a hive from which all drone-comb has been carefully excised would never swarm, and although it might be said that in such hives drones from other hives would be welcomed, the drone-trap applied early (without regard to the queen's confinement) would be a specific against swarming.

Hiving in Skeps.—When a swarm issues normally, and it is intended to place it in a skep, the latter should be perfectly cool and dry, and all chips of straw should be rubbed off the inside, to save the bees the labour of biting them away or gluing them down with propolis. If sticks are insisted on as aids to the bees, or as a means of fixing the combs and preventing damage in transit hereafter, they should be thrust through the lower part of the hive, parallel to each other, and about three inches from the bottom of it. Crossed sticks are an abomination, as one of them is almost sure to be built into a comb as the building progresses, and being in the centre of a hive it is not desirable, as it occupies space which should consist of brood-combs only. Hiving in a skep is of easy performance. If the bees are where the skep can be applied above them as often occurs when the queen falls to the ground; the skep, if placed over the cluster, will be sufficiently attractive, and the bees will go up bodily. When on the branch of a tree they should be shaken into the skep, and the latter turned down on to its floor-board, the front of the hive being raised to permit of easy access to straggling bees, and to prevent over-heating for the time being, the latter often being the cause of swarms deserting their hives. As soon as the bees have settled in the hive, the latter should be removed to its stand, and in the evening set down upon its floor-board.

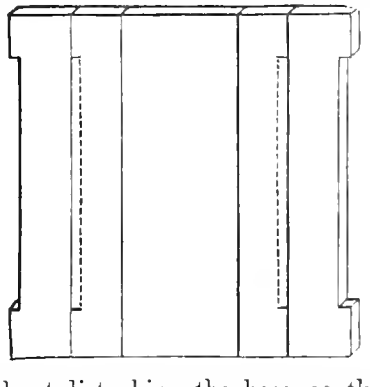
Hiving in Frame Hives.—Having prepared the hive as directed on p. 198, the piece of carpet being between the frames and the adapting-board, the latter firmly screwed down to prevent all movement of the frames, and the whole placed, as directed on p. 199, to receive the swarm, we direct that the latter should be poured out upon the sheet (or newspaper), 'as close as possible to the back,' meaning *the raised back of the hive*, that the bees might run under it and so get inside. Raising the back of the hive puts it in the position it should occupy when placed permanently on its stand, which correctly implies that the back of the hive should then be about an inch higher than its front.

Having caught the swarm of bees and poured them close to the hive, the latter should be shaded from the strong glare and heat of the sun, which otherwise might cause them to leave the hive; and towards the evening the hive should be gently lifted, whilst the newspaper or sheet is removed, and then set down fairly on the floor-board and carried without shaking to its stand.

After Treatment of Swarms.—It but too often happens, that when a swarm is placed on the stand it is to occupy, it is supposed to require no further attention or care, but is left to get its own living and furnish its hive with comb without any aid from its owner. That such a course often ends in failure few will

deny, and the cause is the inability of the bees to obtain sufficient honey to enable them to fill their hive with comb whilst the comb-building impulse is upon them. The comb-building impulse is consequent upon swarming, whether natural or artificial; and while it continues, or can be kept alive, the bees will continue to increase their combs, but if any lack of out-door supplies occurs they will discontinue their building and become disorganised, after which the operations will not be renewed until a glut of honey makes storage cells necessary, and then the bees will build drone-comb only; whereas had their comb-building impulse been stimulated by a fairly plentiful supply of artificial food the building in the first instance would have continued, the queen would have had ample cell-accommodation, and the swarm would have been enabled to take advantage of any honey glut which might happen, and having a very strong population, would probably store a large surplus. It will be evident to even a superficial observer, that until the combs in the hive are formed there can be no egg-laying by the queen, and consequently no rapid increase of population; and it is therefore of the utmost importance that a check, during the comb-building so necessary in a hive, should at any cost be prevented. We would go even further than this—we would say, considering that a queen-bee is capable of producing from two to three thousand eggs per day, how vastly important it is that the combs should be rapidly furnished to enable her to do so, that a mighty population may be quickly produced to take advantage of the earliest honey harvest, and yield a large profit to their owners. We would therefore urge upon every bee-keeper the necessity for feeding his swarms *continuously*, until their hives are filled with combs, and they will be astonished to find how little aid will be necessary for this purpose, and how greatly the return will exceed that of similar swarms which in their first start in life were neglected. Feed gently and continuously through two holes in a feeding-stage, and when the bees have filled their hives with comb the supers should be put on, each being furnished with a piece of new comb to induce the bees to take immediate possession. Every super should have an independent floor-board of its own.

Preparing Hives with Carpet under Adapting Board.—We must here explain why we recommend that a piece of carpet be placed between the adapting-board and the frame-bars, since we have often so stoutly protested against it (as a quilt) being covered in that way, and we therefore say that it is only a temporary proceeding. Many hundreds of hives have been sent out this year which contain no distance guides, from the simple fact that the forming of them would have increased the cost of manufacture, and as the frames may be so easily regulated by the bee-keeper, the expense was avoided. As stated last month, the distance from centre to centre of the frames should be $1\frac{1}{2}$ inches nearly, to arrive at which in hives of the Woodbury pattern, the front and back should be divided into as many equal spaces as there are frames contained, and a frame laid in the centre of each of those spaces will ensure correctness. The next thing is to maintain the frames in their correct position in the hive whilst arranging it to receive the swarm, and this may be easily done, as far as distance is concerned, by driving pins horizontally through the top of the rabbet-cheeks into the frame ends, leaving them sticking out sufficiently far to be capable of easy removal. But to render them perfectly rigid it is necessary to keep them firmly pressed from above, and nothing (save screwing each frame individually) will better effect that object than the screwing on of the adapting-board, with a quilt of carpet or blanket between. Another reason for the quilt being next the frames may be found in the fact that bees do not like to build against anything of the kind, and consequently are less likely to depart from the guide-lines on the frame bars. A third reason for the use of the quilt in these cases is, that the adapting-board may be unscrewed and removed without damaging or disturbing a single bee, and the state of the hive examined by simply turning up its (the quilt's) edges, or it may be pulled off altogether for the examination of combs. The chief object in view, however, is the fixing of the frames, and next, the facility afforded for ascertaining the position of the cluster in the



hive without disturbing the bees, so that food may be administered over the centre of the cluster, and the bees not tempted towards any particular point, at the risk of causing a twist in their building line.

For feeding swarms under these circumstances, their whereabouts having been ascertained, a feeding-hole should be cut in the adapting-board corresponding with their posi-

tion, the quilt gently removed, and the adapter slid on. Adapting-boards are best made in pieces, after Mr. Cheshire's plan, by which the side pieces contain the slots for admitting bees to the supers, and which are so arranged that, although they may be made available on any part of the hive, they may with equal facility, when not required, be caused to rest upon the sides of the hives. The engraving gives the pattern, showing the slots as if resting on the walls of the hive, and the dotted lines suggest their position when in use. The feeding-hole may be made wherever desired.

GUIDES FOR FRAMES.

Referring to our remarks on page 198, several correspondents have deplored the necessity for the expensive apparatus used in the manufacture of the desirable wax-sheeting; many do not require that it should be impressed, believing (and not without reason), as it is necessary that the bees should pare it down to the required thinness, that they may as well pare the wax, and form the corrugations necessary from plain sheeting as from that impressed, with so much trouble and expense attending. They ask, reasonably, 'How is a poor cottager to obtain the wax-sheeting if it is necessary to possess a whole set of kitchen utensils for the express purpose of making it? and an expensive and cumbrous machine for impressing it?' To these queries we have given as a general answer, 'In the manufacture of wax-sheets, no special apparatus is necessary beyond the wooden dipper, which may be made, to cost from one penny to (say) sixpence, according to the extravagant ideas of the operator.' We use the word 'extravagant' regarding those who desire wax-sheets of enormous size, such as *we* do *not* recommend, and whose dippers would necessarily be much larger than are required by those who are content to use the sheets of a width of from one to two inches only. We cannot at this season afford space for further dilation on this subject, and therefore proceed to show how the wax-sheets may be easily made without special apparatus.

The only vessel required is a saucepan, which must be of a size to receive the dipper, and this, as we have before hinted, need not be of greater width than from two to three inches, nor of greater depth than six. We have tried the large size, 12 × 7, and for the purpose used a large galvanised pail as a wax-holder, which was placed in the washhouse-copper, and found to answer exceedingly well; *but we did not fill the pail with wax*, if that were necessary few would be able to make wax-sheets; but when the water in the copper began to boil, the pail was partly filled with it, and the wax was put into the pail in small pieces, so that it quickly melted and floated on the top. But to return:—the saucepan should be about three quarters full of water, and, when boiling, the wax should be put into it, and the whole kept stirred, so that it cannot boil over; and when all the wax is melted, the saucepan should be removed, and the wax used forthwith. For a dipper we find a square (?) piece of deal, as useful as anything; it is about a foot long, 2½ inches wide, and 1½ inches thick, the upper end of it being formed into a handle. Before using it requires soaking in cold water, so that it shall not be capable of absorbing the wax, but in dipping it must not have any globules of water on its surfaces, or they will form blisters in the wax-sheets. All being in readiness, the saucepan, with its layer of floating wax at boiling point, is placed upon a table (on an old tray, grid-iron, or iron stand), and a pail of cold water is placed beside it, the dipper is plunged into the water, wiped with a wet cloth to remove the water-drops, and then quickly dipped into the hot wax and water, as far as it will go, and as quickly removed—the adhering wax will set immediately (?), when it should be plunged for a second into the cold water, and then without ceremony again dipped into the wax and withdrawn, when it will be found coated on all four of its sides, and by the aid of a clean table-knife four handy-sized sheets of wax may be removed without difficulty, and the operation so rapidly repeated that (being made four at a time) the sheets may be easily made by the thousand; in fact, if a hexagonal or an octagonal dipper were used, there would be no difficulty in making them of the sizes mentioned at the rate of *a thousand per hour*, so that there is now really no excuse for crooked combs, since the guide-sheets may be so quickly made, and as easily fixed, it only being necessary to hold the cold strips of wax against the centre of the bars, and apply melted wax on both sides with a small paint-brush, to fix them.

The above method of melting wax for the purpose of forming guides is an excellent one, because the body of water under it keeps it in a liquid form, so that it may be laid along the centre of a frame-bar by the aid of a small brush, and whilst still warm, a notched gauge will enable the operator to remove all its irregularities from the bar, leaving only a straight central line of wax as *the guide*.

Those who do not care to use the gauge, and have no smelter, may be glad to hear of another means of fixing guides. There is a species of waste from cane when chairmakers have removed the outer shell for use in cane-bottomed chairs, which will be found very

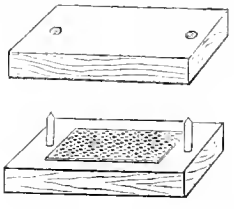
handy and useful for the purpose. It is as pliable and tough as wire, it averages about 1-16th inch in thickness, and is usually triangular, and being *waste*, is of no value, but when drawn through melted wax, and tacked on to frame-bars, it forms a waxen guide which it will be difficult to improve upon, unless wax-sheet or guide-combs be used. It is usually obtained in lengths of about 12 feet, and being tough, as before mentioned, it is easy to manipulate and apply, since, unlike wooden strips of any other kind, it will not be liable to split or break.

Those who would like to try it may obtain a supply from George Cannon, of The Castle, Hanwell, who for a few pence will forward a coil per post, free. This 'Castle,' by the way, is an ancient building in the High Street, it is composed principally of tiles (edgewise for the walls), it has never been 'restored' in the usual sense, but has a wing in the form of a wooden lean-to over its front door, in which are exhibited cakes, sweets, and fruit for sale. It consists of one room, and is consequently only one story high, and is happily without dungeons. Its occupier makes and mends cane-seated chairs, and will doubtless be glad to receive a few pence for *the waste* in his trade.

IMPRESSING WAX-SHEETS.

We have been very much inquired of as to the simplest mode of using the plates for impressing wax-sheets; and here again we are at war with expensive apparatus. Take two pieces of flat oak or yellow deal about 1½ inches thick and rather larger than the plates, lay a plate on the centre of one of them, and with a firm bradawl, twist (drill) out holes in the bottom of half-a-dozen of the corrugations on its outside edges, and drive in some fine pins to make the plate a fixture. The second plate should now be laid upon the first (to match), and the second piece of wood upon *it;* the whole should then be inverted, and the plate and block, which have been united, should be steadily lifted off, so that the then under plate and block may be also pinned together and fixed in manner aforesaid.

The pair of blocks with plates should now be put together (properly matching and fitting) and two holes bored, as indicated, through them both; the under one should have pins fitted into its holes of sufficient length to reach into the upper one when applied, to act as dowels, and ensure the matching of the plates when the wax-sheets are placed between them, when they will be ready for impressing. Almost every one knows that when a child cannot of itself apply sufficient pressure to a nut to crush it and obtain its kernel, it uses the lever power obtained between a door and the door-post, and probably there are few of a larger growth who do not know how to extemporize a lever which shall aid them in applying sufficient power to impress the



wax-sheets. Any one having access to a carpenter's or a smith's vice needs nothing better, as when the blocks, &c., are placed between the jaws of either, half a turn of the handle will effect the object, and produce the perfect impression. In all such things, however, a little practice is necessary, and difficulties disappear as they are approached.

HIVING IN HIVES WITH FIXED LEGS.

Since the appearance of our New Frame-bar Hive last year, it has become the fashion to turn the majority of bar-frame hives into 'quadrupeds,' by giving them each four substantial legs, not only that they may be secure on a permanent stand, but also that, by the addition of runners, *i.e.*, stout wooden strips nailed on the inside of the legs, as shown in the description of the Improved Cottage Woodbury, pp. 200, 201, the floor-board may be removeable without disturbance of the hive,—no small boon in winter when it may be necessary to reverse it and place its dry side uppermost. Many who have become possessed of such hives are not a little puzzled to know how they are to get swarms into them; and although this was explained in a former volume, a reminder, for the use of beginners, may not be out of place at this particular season.

It will be observed in these hives that the floor-board is kept up to the bottom of the hive by two wedges thrust between it and the runners, by withdrawing which the floor-board is loosened and rendered moveable, and this affords an easy means of introducing the swarms. Premising that the frames have been correctly fitted with guides and are fixed in their proper positions as recommended last month, we would turn the hive on to its back on a sheet, so arranged as to give no opportunity for the queen or bees to crawl between it and the hive; we would then loosen the wedges, and draw up the floor-board about four inches and tightly wedge it in that position, thus leaving

an opening of about three inches across the end of the hive resting on the sheet, and the swarm by this time having alighted we would catch them and pour them upon the sheet close to the opening, into which they would immediately run. As soon as it became evident that the queen had gone up, which would speedily be shown by the conduct of the bees, the hive should be raised to its correct position (level across the front, but having its back tilted), the wedge under the floor-board should be gently withdrawn, and the floor-board pushed into its place on the runners, where it should be allowed to remain until the evening, thus affording an easy passage for the bees through the whole width of the hive. When evening approaches, the wedges should be quietly inserted between the floor-board and the runners, and pressed home with the greatest gentleness, so that any bees between the hive and the floor-board may be 'pressed' to get out of the way instead of being hastily crushed.

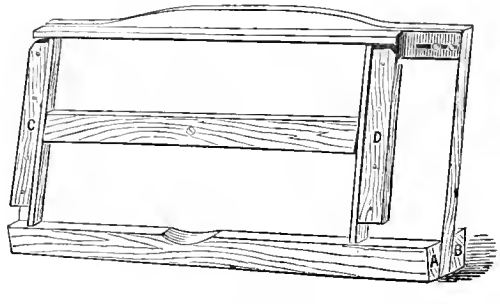
OUR FRAME-BLOCK.

We hoped ere this to have been enabled to describe and illustrate the frame-block, invented by J. M. Hooker, Esq., of Sevenoaks, but inasmuch as he is *improving* it, and it is not yet complete, we hope our friends will be content, for the present, with a description of that we have in constant use, and which, notwithstanding its extreme simplicity, answers its purpose well, and ensures the perfect truth and squareness of the frames made in it.

It was constructed to aid in the manufacture of frames for the Cottagers' Hives, which gained the first prizes at the Crystal Palace, and also for those of the Improved Cottage Woodbury, which are almost identical, the differences being that the projecting ends of the top bars of the latter are a little longer, and the frames a trifle deeper than in the former. Frame-blocks are usually made to lie upon a bench or table, but ours is made to stand up—not *upright*, in a carpenter's bench-screw, or vice. Many also are made, so that the parts of the frames are fitted *outside* a parallelogram, so as to ensure perfect uniformity of their inner dimensions, in which case any deviation in the thickness of the material of which they are made, would cause their outside dimensions to vary, and as exactitude in this respect is all important when the frames are in a hive, we very much prefer the frame-block which secures it.

To make it.—Take two pieces of inch board, 9 inches wide, and 11½ inches long, and secure them side by side, between two pieces of yellow deal or oak, of the shape indicated by A, B. These latter are formed out of a solid piece, about 18 inches long and 2 inches square by a diagonal cut lengthwise, and are fixed so that their outsides shall be parallel, that when placed in the bench-vice, the board, or 'block,' shall lean back at a comfortable angle away from the operator. A piece of deal, an inch square and 7¼ inches long, is then secured to the edge of the board, as at C; and a corresponding piece at D; the distance between them being 14 inches, or exactly half an inch less than the length of the hive from front to rear, so that a uniform space of a quarter of an inch between the walls of the hive and the frame ends is secured. It should be remembered that this space (to prevent both comb-building and propolizing) should not be more than $\frac{5}{20}$ths nor less than $\frac{5}{24}$ths of an inch, *i.e.*, just sufficient for a bee to pass through and no more.

In fixing, C and D are not brought down close to A, but spaces of ¾ of an inch are left under them to receive the top bar of the frame when it is reversed; thus the tops of C and D will be 8 inches from the level of A. In the right-hand top corner of block, an arrangement will be noticed which forms a gauge, or 'set,' adaptable to any reasonable length of projecting top bar, by loosening the screws, sliding it outwards, and refixing it. The cross piece in the centre is moveable on its central screw, and by pressing the right hand or upper end of it, the frame ends are jammed close against C and D, and are firmly held in position while the top bar is being nailed on, when by a similar pressure of the left hand on its lower end, the frame (?) is released, to be turned upside down so that the bottom rail of the frame may be nailed, and the frame completed.



A is hollowed in the centre to allow of the frame being easily removed, and the top corners of the block are ramped (reduced by a curve) down to the level of the top of frame to permit of easy nailing; there may be many improvements made in this handy machine, and doubtless not a few will think the centre bar ought to be in two pieces, but if it were so, two movements would be required to fix and to liberate the frames.

To prepare the frames for the Improved Cottage Woodbury lately described, select some

nice clean pieces of board (*i.e.*, free from knots, &c.), and straight grained, for the top bars they should be 17 inches long and $\frac{3}{8}$ths thick; for the sides of the frames they should be $8\frac{1}{4}$ inches long and $\frac{1}{4}$ thick, and for the bottom 14 inches long, and $\frac{3}{16}$ths thick, all nicely squared at their ends. They should then be cut into strips, those for the top and sides being $\frac{7}{8}$ths, and those for the bottom about $\frac{3}{8}$ths of an inch in width. As a general rule, where bottom rails are used, they need not be more than $\frac{3}{16}$ths to $\frac{1}{4}$ thick, and there should be $\frac{1}{4}$ space left under them, so that in cutting the lengths for the ends of frames, they should be barely half an inch less than the height of the walls, or rabbets, upon which the top bars rest. The engraving shows the sides and top of a frame in its block, which requires no further description.

'A very minute bee goes into the common small holes in worm-eaten wood to make a comb and lay its eggs, with a supply of honey. There are seven or eight honey-bees of small size in this country.'—*Dr. Livingstone's Last Journals in Africa.*

Correspondence.

*** *These columns are open to Subscribers, so that their queries, replies, correspondence, and experiences, may be* fully *and* faithfully *recorded; and for the discussion of all theories and systems in Bee-culture, and of the relative merits of all hives and appurtenances, that the truth regarding them may be ascertained. The Editor, therefore, must not be expected to coincide with all the views expressed by the various writers. All Correspondence is addressed to the Editor.*

THE BERKSHIRE BEE HIVE.

I am not of those who like to rush into print on every occasion, but your very able description of the above hive in the March number of 'our *Journal*' seems to require some little explanation.

I have kept bees for the last thirty years, but always more as a pleasurable recreation than a commercial speculation, hence my invention of the Berkshire Hive with large glass windows, so that I might see the bees at work in their natural state. Now were I to adopt bar-frames in accordance with your kind and generous advice, a little more honey might be gained, but as you admit (page 193) my windows would be useless, and the pleasure of watching the bees in their different stages of comb-building would be gone. This will explain one point on which you say the Berkshire hive falls below your standard, the fixed crown-board follows as a necessity, and after all that has been said about the 'quilt,' I think I could challenge any apiary as to health of bees, or cleanliness of hives. Every summer my apiary is seen and admired by hundreds of visitors; and though I do not expect to make any fabulous sums by it. I can generally succeed in securing a large quantity of beautiful honey, for which I always have ready sale, in the comb, often obtaining (as I did last year) over 60 lbs. from one hive.—J. Sadler, *Sonning, near Reading, Berkshire.*

[We shall be very greatly obliged to our esteemed correspondent if he will favour our readers with his method of preparing, or packing his bees for the winter. His hive, being of a distinct type and shape, may have much to do with the bees' immunity from the evils which usually beset bees during the season of wind and cold weather. It has one great advantage, alluded to in p. 143, viz. the combs are built close up to the crown-board, and partly down the hive-sides, and this alone would cause it to winter better than the majority of bar-frame hives; still, we should like to know how the stocks are treated in late autumn.—Ed.]

BEE-KEEPING IN GERMANY.

I lately visited the two model apiaries at Hanwell and Acton, and was very pleased indeed. At Hanwell I intruded upon Mr. Abbott, who, by appointment with a gentleman from the West, opened a frame-hive (I suppose a Woodbury), in which all the combs had been built crooked. Although this was not new to me, I had great pleasure in watching the distinguished and enthusiastic master of the English bee-keepers handling and securing the frames. All the four sides of the wooden hive were unfastened, but the bees were neither aroused to alarm nor indignation. A few puffs of smoke, but very little indeed, were used, and in a short hour all the frames with their crooked combs were put right, and the latter perfectly straight, each having been separately taken out in the crooked state with all the bees crowding upon them, queen, brood, and all, and returned in the most skilful way in capital, first-rate order, scarcely ten or a dozen bees being aware of what had taken place.

The number of hives at both places is smaller than I expected to find. Bee-keeping, both in Germany and America, being so largely carried on that bee-farms with a hundred hives wintered are considered very small.

The poorest villagers keep bees, and it is to this class we must look for the bee farming on a larger scale. Gentlemen amateurs may excel them in quantity and quality, but the former only can make it answer unless carried out on a very large scale, viz., by the hundred or thousand.

When the advantages of bee-keeping were first pointed out by our German Professor and Master of Bee-keepers, Dzierzon, the Prussian Government having heard of his teaching, he was ordered to report and present himself at the Agricultural Department. There he was requested to teach a few practical men his new mode, *not the present frame*, but only the loose top bar (which now forms part of the frame), his wooden hives, his depriving and manipulating system. His lessons have been taught since to almost every child in the National schools, since all school-masters must now pass a Government examination in bee-keeping, which they teach in the schools, and Government finds the funds for all these expenses. Thus parents and children all take an interest in bees, and every village has its connexion with the bee-club of the province: all clubs join again the large 'Central Bee Association of Germany and Austria,' for which the *Bienenzeitung* is the representative and leading Bee journal. Every

local club issues, besides this, its own monthly or bi-monthly newspaper on bees *only*, for its own province and its own clubs and connexions. Bee literature is the cheapest, enabling every poor man to take it, and by subscribing to the Association he receives the journal at a still further reduced price; he takes an interest for himself, his children, and out of jealousy for his neighbour's sake, who also takes it, in supporting an institution about which he can converse with all. All know bees and take a lively interest in them. A strong competition among the different Associations is caused by the German Government, viz., the Agricultural Department, contributing considerably to the prizes at the Exhibition, which latter are under the direct patronage of his imperial and royal highness the Crown Prince.

I have found the hives far too expensive to induce the English cottager to give up his straw skeps, and to take to the improved frame-hive. They are very well for London gentlemen, who *can* pay, and who *do* pay, exorbitant prices, and who are as often disappointed in the results not meeting their laid-out expenses. All hives are alike in this respect, excepting Mr. Abbott's cheap hives.

Now, whilst I do not advocate Mr. Pettigrew's views entirely, I like the straw skep, and go in for the moveable frame hive. I have often found that bees winter better, and consume far less honey in the straw hive. With this view I should like to draw the attention of the British bee-keepers to a straw hive with moveable frames, invented by Mr. Gravenhorst, Brunswig, which combines many very essential points, and recommends itself more particularly to the poorer cottager, who would sooner take to the straw hive with the frames introduced into it, than he will to a wooden hive, being still too much prejudiced, like all our forefathers were. I refer to the little book of which I translate the title-page, '*The Practical Bee-keeper*. Instructions for everybody to make a frame strawhive for themselves, which is acknowledged a good and cheap straw hive, with moveable frames, and to carry beekeeping on with every advantage in it. By C. T. H. Gravenhorst, Brunswig, 1873, 15 gr.,' equal 1*s.* 6*d.*

This gentleman (a second Dzierzon), one of the foremost in bee-cultivation in Germany, takes a great interest in the American Bee Journal, and would no doubt exhibit his hives at the next September Show, where he would find many friends to welcome his principle, which combines cheapness and durability, simplicity and warmth, with the round top, which latter is never disturbed, and remains as in the old straw skep. The examination is a very simple and an easy matter. The hives, like the old straw skep, have to be turned up, when the moveable frames can be withdrawn. Everything can be as well performed on these frames as in the expensive wooden English hives.

One of this hive's greatest advantages is that one hive can be made to accommodate two or three queens and their people at one and the same time; thus three bee-populations may be successfully carried through the winter to be again divided in April or May to stock three separate hives, saving many queens alive where now the bees are joined in autumn and their queens destroyed. An old saying with us is, 'When I have a queen I have a swarm,' as a few thousand young bees upon a few frames with brood, ready to crawl out of the cells, can always be procured and given to the queen to make a beginning and to make it strong and populous.—T. G. Kirsten, *Bridlington, Yorks.*

WINTERING BEES IN UNICOMB HIVES.

Your correspondent, Mr. Carr, cannot have seen the prize essay of the Entomological Society, on 'The Duration of Life in the Honey-bee,' for the year 1853, published in the *Transactions* of the Society, and the papers in continuation thereof furnished by me, and read before the Society on the 2nd April, 1855, and the 4th May, 1868, also published by the Society, wherein I gave the history of a stock of bees, with their queen, kept alive in a Unicomb Observatory hive, from the 16th July, 1852, to the 22nd November, 1857, a period of five years and four months. Since that time the introduction of the Ligurian bee has done very much to prove the length of life in the worker and drone-bee; and it is a source of great gratification to me to know how much the conclusions I drew, from the lengthened experience carried on by me, and detailed in the prize essay and subsequent papers, have been confirmed by the duration of life being shown, by the time taken to change a brown stock of bees to a Ligurian stock, by the introduction of a Ligurian queen, and *vice versâ*; but Mr. Carr need not discourage apiarians by the statement that a stock cannot be kept alive in a Unicomb hive.—J. G. Desborough, 12 *St. Peter's Hill, Stamford.*

HR. JORGEN NIELSEN'S PATENT BEE-HIVE.

EXPLANATION OF THE DRAWINGS.

Fig. 1. Horizontal section of half the hive, showing frames, &c.

FIG. I.

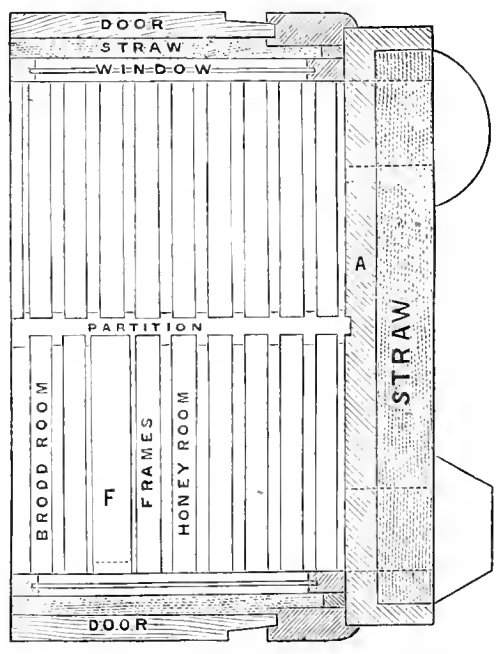


Fig. 3. Transverse section of the hive without the roof.

FIG. 3

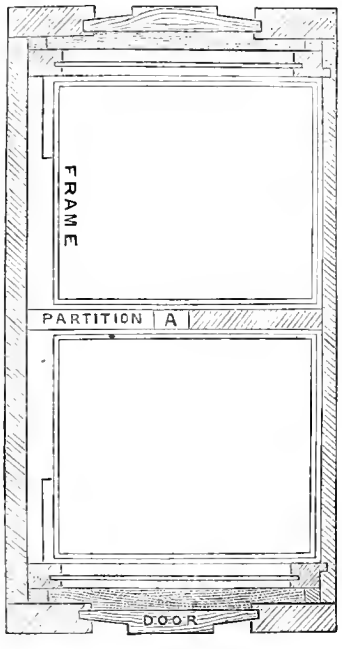
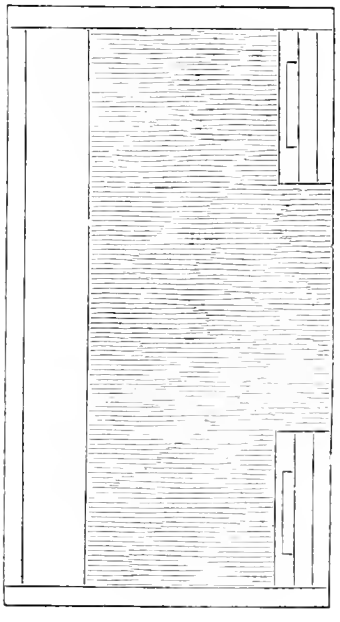


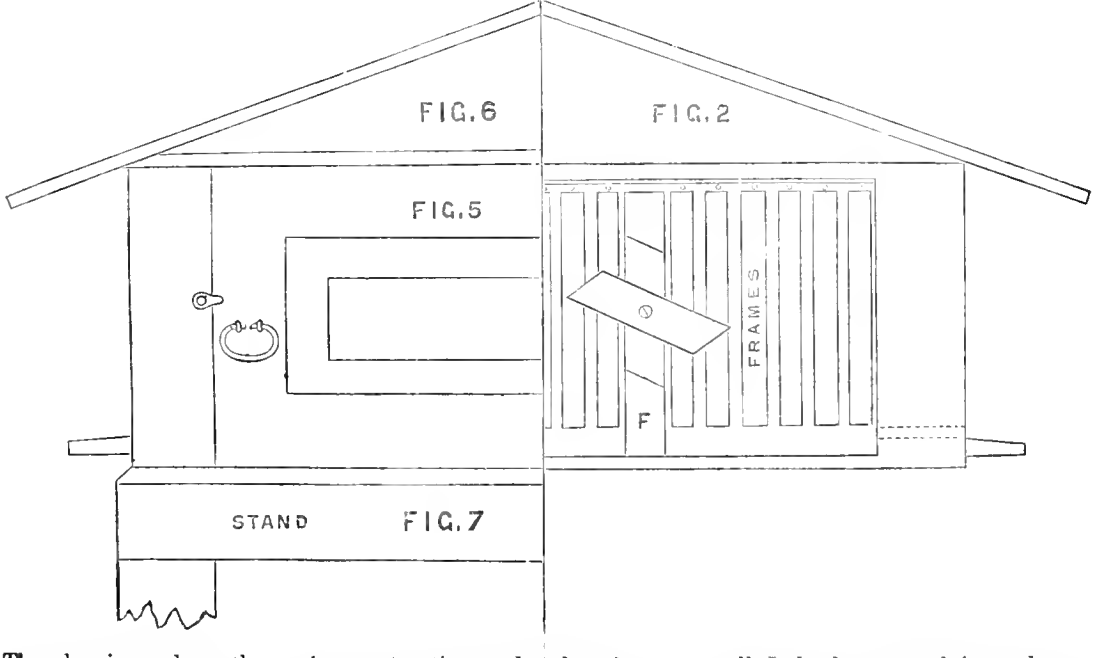
Fig. 4. End view of the hive without the roof.

FIG. 4.



Figs. 5, 6, 7. Views showing the front side of the hive, with door in its place; the opposite side of course is the same.

Fig. 2. Front view of hive, the door and window removed.



The drawings show the main construction and principle of this hive; it is divided through the centre of its length by a fixed partition, so that it can be used for two or four colonies as desired.

The main feature of this hive is that the frames take out sideways. The frames at the front side hanging on small L hooks screwed into the roof, these hooks fit into eyelets screwed into each frame, see Fig. 2, the back side of the frame rests on a fist on the partition. In each room of the hive is a moveable division board, F, which is 1¼ inch thick, fitted with a variable connecting opening, to give the

bees admittance to the honey room when the hive is used for taking honey; or it can be closed when it is intended to have four colonies in the hive. Each side of the hive is fitted with two glazed windows, as shown, as also an outer door with suitable fastenings, that allow the door to be taken off. These doors are lined with straw, as also the ends of the hives are neatly thatched with straw, see Fig. 4.

In the centre partition is shown a small hole, A, Fig. 3. This hole is made use of when one of the colonies is queenless, or if it is wished to unite two of the colonies, the small plug is taken out, and this allows the necessary connexion; at other times this hole is kept closed. These hives have a very neat appearance, and the workmanship and material are good, as also the principle finds favour with many bee-keepers.—J. S. Wood, *Nyborg*.

WAX-SHEETS

Are of the greatest utility to the bee-keeper and ought to be in the hands of every one, they are a perfect insurance in securing straight combs, they give ample space for the powers of the queen in egg-laying a few hours after being hived, and puts the whole hive in advance some days over those which have not been provided with them. By the utilisation of the extra wax the hive rises in weight quicker than those hives that have their whole comb to raise from the foundation. They are also an inducement to the bees to raise more worker comb than they might otherwise do; in fact with the wax sheet and the improved frame hives, the bee-keeper has the control of the hive at all times in his own hands. I, however, before closing the article must refer to our Editor's remarks in last month's *Journal* on the breadth of the sheet recommended by him to be used; and with all deference to him or his opinions, still I must express myself as dissenting from him in his views, when he says they are 'a size perfectly unwarrantable.' On the other hand, unless when my supply runs short, I always use the full size in hives, and in supers a little less than the full depth. I must admit, however, that in the hands of a novice, narrow strips are safer than sheets used the whole depth; but in the hands of an expert, the sheet the full size will be found of the greatest utility, and a very great deal more to his profit, at least it has always been so to—A Lanarkshire Bee-Keeper.

HIGHWAY ROBBERY BY BEES.

One of the most interesting incidents in connexion with the pilfering habits of bees occurred here and continued for over a week.

About ten days ago, while passing a neighbour's hive, my attention was drawn to a well-marked Italian bee hovering about, and making rapid darts at the in-going bees, but beyond this I failed to notice its real intention. Subsequently I observed the same bee enter the hive, it then occurred to me that it was a mongrel; but it immediately made its appearance at the mouth of the hive, followed by two and held by one, but it managed to escape. It then appeared exhausted, and I lifted it and held it in my hand, until it had recovered; it then flew away and rested itself in the sunshine. In a short time after my friend called on me to witness the daring robbery of an Italian bee. It hovered about the hive, and immediately a bee laden with pollen alighted, it darted like an arrow at it, catching it to stay it, and actually stole the pollen from the black, and loaded its own legs with the *yellow dust;* and although many attempts were made at its life, its agile movements prevented its being taken prisoner. It is still continuing its pilfering habits, but it never now attempts to enter the hive, no doubt having learnt a lesson from the first time it did. One day it continued its practice for five hours without intermission, only taking a rest for a few minutes beside the hive, or leaving for its own for a short time, to deposit within it its hard but dishonestly earned load of pollen. One thing I observed, that when it happened to see a bee laden with pollen to fall upon the hive or ground, it flew straight to it, and commenced its operations, unless when a gust of wind would throw it off its object a few inches, it then appeared not to use its eyes, but its antennæ. Another thing I observed that when it rested it did not fall into a state of repose, but was at all times ready to start, very different when a bee is under the influence of sleep: about which I have something to say on another occasion, which will include the observations of—A Lanarkshire Bee-Keeper.

WINTERING.

The past winter and spring months from which we are now emerging, have been the most severe and untoward that have been experienced for a long time. This day, 5th April, the bees have not yet had a day to work, yet, notwithstanding, bees have wintered better and are more healthy than I ever found them on any past year; the mortality has never been less; hives are as strong as they were in autumn; I have not seen the slightest trace of dysentery nor disease of any kind amongst my own or neighbours' stocks. Nor is there the slightest trace of internal damp in any hive. If I except one straw hive I had presented me, and which I lost through internal moisture. Will Mr. Pettigrew explain this wonderful phenomenon?—I would like to hear his opinion.

The cause of the general good health of the bees this past winter may be attributed to the atmosphere, which, although cold, has been pretty generally dry. All my bees have been located in frame-hives with slides at all times handy and at no time a 'plague' when in the hands of a clever Bee-Master. At one time, years since, I was in the habit of withdrawing these slides and placing thereon a mat of straw on top and sides, or a frame with carpet underneath, stuffed with straw above, with feeding-hole left in centre, just the very thing Mr. Hunter recommends on page 208. But I have long since abandoned these on the discovery that the thin slide alone carried off all vapour from the hive. Any person who doubts this, let him place a piece of glass on the top of his hive having these slides, and he will soon see the condensed vapour on the under side of the glass. The best of all covering for hives is long and soft meadow

hay, it is the best non-conductor, and damp is never found beneath it if protected from the rain. Covers such as Mr. Hunter describes, and, what I once used, are liable to the attack of the moth, and mice can nestle with safety in them. A single quilt is better in this respect, but it is too little to economise the heat for early breeding, unless hay or straw is placed above; more woollen cloths than one holds moisture.—A Lanarkshire Bee-Keeper.

STRAIGHT COMBS, EGG CARRYING, &c.

I have been rather longing for one of your new hives, but do not want to introduce odd shapes and sizes of frames into my apiary. I so much prefer having them all interchangeable, and, to say the truth, I am not quite sure that I like the dispensing with the bottom bar. I have always compelled my little friends to fill up to the bottom bar, by inserting a slip of comb. I cut the bottom edge of the comb straight, and fit in a slip which they make up to the comb, and of course to the bottom bar also. There is then no danger, even in the hottest weather, of a comb collapsing.

I often think that it would be worth while to compel them to build their combs more perfectly straight. There are generally some bends and waviness, especially towards the lower part of the combs, which interfere with the frames being fully interchangeable. I have thought of sliding perforated zinc between the frames while comb-building is going on, the holes being large enough for the bees to pass through, but I have not yet done so knowing their dislike to metal. What do you think of it?

As to 'quilts,' I have always felt the difficulty of damp in the winter, and tried many ways of obviating it, but never with entire success till this winter, when I have used the quilt throughout my apiary. They have opened splendidly after all the severe weather; and one box especially has proved the excellence of the quilt. It was fed too freely and too late, and the bees consequently had dysentery badly. With the damp induced by the use of the top-boards, they could not have survived, but with the dryness and gentle ventilation afforded by the quilt are now quite well.

How is the Bee Association going on?

What are the prospects of a show this year, and what money shall you want for the expenses?

When are the subscriptions due?

Have you ever observed the amount of egg-carrying which our friends will do at times?

Last year, I made a four-comb nucleus for queen-raising, and for some reason they did not attempt to make a queen till the larvæ were too old. I then gave them a bit of comb with eggs; and again they did not care to make a queen. Disgusted with their improper conduct, I did not trouble with them for some weeks, when, having a spare combfull of larvæ and eggs, I thought I would give them another chance, so introduced it into the middle of the box. On looking at it next day they had commenced several queen-cells, and had carried the surplus eggs into the adjacent comb; not only into the cells on the side next to the brood-comb, but also, carrying an equal number into the cells on the other side, just as a queen, having laid some eggs on one side of a comb, always (I believe) goes round and lays an equal number on the other side—no doubt for economy of heat. I was surprised, however, to find the workers carry the eggs so far, and show the same instinct in disposing of them as the queen does.—W. Bassano, *Haden Cross, Old Hill.*

P.S.—By-the-by, do not you find that the bees fasten the adapter to the frames with propolis in your new arrangement of flush frames?

[The mode of overcoming our objection to the bottom rail is ingenious, but would it not be as easy to allow the bees to build the combs to their natural depth, and then to fix a light line of wood along the bottom for the bees to build against solidly? This method we recommended in the *English Mechanic* several years ago. Never having tried the method suggested of obtaining straight combs, we can give no information, but do not *think* it would be satisfactory. Some little information may be gained as to the proceedings of the Committee of the Association from the Secretary's Report. The Caledonian Apiarians are setting an example which we Southerners ought to follow—the reading of papers on various subjects, for instance. The egg-carrying has frequently been observed, but is often disputed. We can, however, vouch for the fact. For answer to postscript, please refer to Reply to Query No. 118.—Ed].

QUILT *V.* CROWN-BOARD.

I am glad to say that all my bees have passed the winter in first-class order.

In the bar-frame to which the bees of two old stocks were transferred in October, and fed afterwards. There was less of damp and mouldy comb than in straw hives that were sitting beside it. The bar-frame had no covering but the quilt, as you recommend, sheltered from the weather with an old box of ½-inch wood, but tight enough in the joints to keep pelting rain or drifting snow out. After a month of frost and snow, with the temperature as low as 12°, 10°, 8°, and 6°, came a fortnight of weather with a much lighter temperature, at times above 50°, but so wet, moist, and damp, that everything was saturated with moisture; then frost for a few days, again wet, then frost with biting cold winds; again alternate wet, frost, and mild days, and last week the first drying days we have had since the beginning of November. Could severer weather be? It has increased the death-rate of every living, breathing thing. My bees under a quilt of jute carpeting, are living, and in good health, with their domiciles dry and snug.

What more proof is necessary for the superiority of the quilt? Such a hard winter has not been in this quarter for the last thirty-six years, and the quilt carpet has been tested to its utmost for ventilating a square wood hive. I had no crown-board, never had nor never intend to have so long as my wife can give me a square or two of jute carpet—stair-carpeting, and neatly sew and bind it. Believe me, Sir, it is a far too simple and easy-got affair, for all those who are interested in fanciful crown-boards.—J. S., *Arbroath.*

THE QUILT.

Seeing the objection that has been raised to the use of the quilt by Mr. Hunter, I felt rather

frightened about my bees, for I had covered all my hives with old carpeting at the commencement of the winter, according to instructions. I had no opportunity of examining my bees until last week, March 9th, although I had several peeps at them by just lifting the covers to see that they were alive. Then, as the day was very fine, I thought I would go through the lot, and I was delighted with what I saw; for in every hive I found the bees in first-rate condition, the combs being as dry as possible, and the queens laying lots of eggs in all. The only damp I found was in the roofs of three hives, in the ends of which I had omitted to bore holes to allow the moisture to escape as it rises from the body of the hive. I think the boring of holes should have been mentioned in your instructions about the Quilt.

Your idea of stimulative feeding I think very good. I have had bottles of food on all my hives since Christmas, and think it has paid very well; for I found in one hive some brood sealed over, and in all the others grubs nearly ready to be sealed. So I think they are in first-rate condition for so early in the year, and consider that it is owing, in a great measure, to the quilt; for if they had not been so dry and comfortable they would not have begun to breed thus early. Therefore I will still use the quilt, in spite of what its enemies may say. I should like to know whether Mr. Hunter had holes in each end of the super-cover of the hive he lost.

I have to thank you for your kind advice about the robbery I had in my apiary. By changing the hives it put them in such a state of confusion they did not know what to do, but it had the desired effect and stopped the robbing. When I looked at them next day I found it had improved them, for a lot of the bees from the strong stock had stopped with the weaker; and as the queens are still laying well, they will soon be two strong stocks. Wishing the *Journal* every success.—Quilt, *Leicester*.

MR. RUSBRIDGE'S MODE OF TREATMENT.

In our particular vocation, as enthusiastic apiarians, deeply interested in all that pertains to the science, it is a matter of extreme pleasure to give information, advice, or suggestions one to the other, in the *Bee Journal*, where, as it were, we meet together monthly, to hold a *conversazione* on topics mutually interesting, with our Editor in our midst to correct us if the theories broached are too far-fetched and extravagant. Not unfrequently the ideas expressed are somewhat at variance one with the other, when, like true knights, eager to do battle for the cause, the lance is laid in rest and, after tilting, not in the 'listed field' but in the columns of the *British Bee Journal*, the combatants shake hands and make friends. Well, due allowance must be made for that which an American humourist styles the 'fit o' human natur.'

In the current number I perceive a 'Lake Lancashire Bee-keeper' asks for a little explanation as to my system of supering, and 'C. H. E.' requests a little information on 'Fumigation,' which I am happy to furnish.

Hitherto the weather has been most ungenial for bees, as for bipeds, yet, curiously enough, mine are forwarder than is generally the case in the early part of May. One of my stocks, now entered on its *ninth* year, is full of young bees. This one has been subject to a special course of treatment, and has never been disturbed since it was placed on its stand, not even lifted from the floor-board. Last summer my prize super was removed from it, after being on but eighteen days; afterwards, having no spare super handy just at the time, I capped it with bell-glasses.

Now, as to preparing supers for use; in the first place it is advisable to have the bars, or frames, 1½ inch wide, with ½ an inch in space between. Having tried various widths of the bar, I can from experience recommend bars of this size, to answer as well or better than any, for the reason that the cells are built deeper than for brood; consequently brood in supers thus furnished is of very rare occurrence indeed. Each of the bars on the underside is furnished with a piece of clean guide-comb, care being taken to place it as near perpendicular and straight down the centre as possible. If made of yellow deal, it is a good plan to rub the interior with beeswax before use, to neutralize the strong scent of the wood. The reason why I object to the $\frac{3}{16}$ of an inch opening is, that I find bees have a decided reluctance to force a passage through such a narrow aperture, nor does it effectually answer at all times to bar the entrance of the queen, as may be gathered from the correspondence last season. With thick comb and deep cells, even if a little brood should chance to occur when the combs are in process of construction, in that case wait a little while before removing it, and when the bees hatch out, the cells will be lengthened and stored with honey. Comb of this thickness once made and finished is never used for breeding purposes. I am strongly in favour of giving ample entrance to the super. Some of my hives are furnished with four 1½ inch holes at the corners, others with slits ½ inch wide by 2 inches long; in my bar-frame hives the passage is between the outer and second frame on either side, and about 6 inches long. Whether right or wrong, I believe that bees will sooner deposit their honey in the stock hive than force a passage through a narrow opening.

With regard to ventilation, the 'quilt' (not an apt term by-the-bye) seems to answer better than anything. To be able to allow the evaporation freely to escape at the same time, without in anywise lowering the temperature, must be considered in the light of 'another hill-top gained.' Occasionally I have used a super for that purpose, with a sheet of glass on top, and the hives thus treated have done very well in the ensuing season, notwithstanding obvious traces of mouldiness in the outside combs, from which they are now, thanks to the 'quilt,' entirely free.

While on the subject of ventilation, it may not be out of place to add a few words as to the protection afforded to hives by many happy-go-lucky apiarians, in this variable climate. As a rule, in keeping rabbits, pigeons, or in similar profitless pursuits, considerable care is usually taken in erecting a comfortable domicile, while bees are thought able to shift for themselves, with an old sack, piece of crockery-ware, or a

mouldering heap of rhubarb-leaves, tastefully arranged, so as to evince a nice perception of the beautiful on the part of the owner. One such bee-keeper, located in a neighbouring parish, is present to the mind's eye as I write. Inquiring a few days ago how matters were progressing in his apiary, he ruefully declared that in half the hives the bees were dead, while at the same time there were ample supplies of honey. He could not understand it at all! His fowls were snugly housed in one corner of the garden, the straw hives in another, with about one old rotten guano bag a-piece for covering, cleverly secured by a piece of rope yarn; and yet he wondered at what he was pleased to term his ill-luck!—ALFRED RUSBRIDGE, *Sidlesham, April 2nd*, 1875.

FUMIGATION.

In reply to 'C. H. E.' it was my intention to copy verbatim a chapter on 'Fumigation' from the old copy of the MS. of a work I have now in the press. Unfortunately, after a long search, I must conclude that it is either mislaid or lost, thus necessitating a vexatious journey of twice over the same ground. My method of proceeding with the eight straw skeps in question was as follows:—In the first place, I procured a tin cylinder, a cheese-box with a 2-in. margin around the lid, a bundle of linen rags tied up in eight pieces, previously saturated in a weak solution of saltpetre, and well dried, a pea-shooter, box of cigar-lights, and a pair of bellows. Inserting the tin-tube into the entrance, a good puff of tobacco-smoke is blown in; then the hives are placed over the cheese-box one at a time, a bundle of the composition placed in the cylinder with a fusee to set it going, one end is pushed into the mouth of the hive, the nozzle of the bellows into the other. A buzz of alarm ensues, after which the bees are heard dropping fast into the box beneath; the hive is then struck gently with the palm of the hand, so as to dislodge the stupefied bees; then it is removed, and the bees shot out into one of the two boxes which had been specially prepared for the purpose. Half of the number had been treated thus, when they were pent in by a piece of coarse cheese-ware, tied securely over the bottom. The other four were served in the same manner. By morning the bees were seen clustering on top of the hive like a large swarm. Being so near winter (Oct. 28), of course anything less than an ample supply of food was not to be thought of, and so they were fed without stint. Ere a week had passed the edges of the white combs were seen on the outside of the cluster. There was not half a pint of dead bees in the whole. Being reduced, in the first place, to a common state of poverty—having no store to defend or fight about—they soon settled down peacefully, working vigorously to build comb in which to store the winter supply. I cannot but regret that the two boxes used were not furnished with bar-frames; had they been so, the outer combs at least might have been advantageously emptied of the contents. I fear they are somewhat too full even now, although both are doing famously. Strong evidence of the prosperity of the two is afforded in the shape of large stores of pollen daily carried in.—ALFRED RUSBRIDGE, *Sidlesham, Chichester, April 3.*

NEW WORKS ON BEE-KEEPING.

I think I am justified in adducing as an evidence of the increased interest taken by the public in apiculture the multitude of books on that subject, which have issued, and are issuing, from the press both in this country and on the Continent. At the head of these I place the work on bee-keeping by Mr. A. Pettigrew, the announcement of which I noticed in your advertising columns in March last. From the position occupied by the author for many years in bee-practice and literature, I may safely conclude that this work will give us the results of a long life spent in the study of the instincts and habits of the bee, and the special mode of treatment adopted by him. There can be no doubt that the book will contain much that will prove of great service to the student of apiculture; and though we may smile at Mr. Pettigrew's conservative adherence to the straw skep and his devout respect to the black bee, yet we feel assured that a large amount of practical information will be found in its pages.

In the *Journal* for April there was the announcement of a Manual on Bee-keeping from the pen of the hon. sec. of the British Bee-keepers' Association. Mr. John Hunter, in inheriting a name of 'world-wide' renown, has obtained a prestige by being thus in a measure 'born to greatness.' How far, by his 'achievement of greatness,' or by having 'greatness thrust upon him,' he was raised to that proud 'eminence' of secretaryship, concerns me not to inquire. It behoves me rather to be thankful to him for all that he has done in that capacity. But, having attentively perused the several communications which he has from time to time contributed to 'our *Journal*,' I confess I am at a loss to discover aught in them which would induce me to look to him as an authority in practical bee-keeping, or to expect a book on the subject from his pen. His communications in the first volume (p. 158) contain certain views on the artificial impregnation of the queen-bee, chiefly based on an assumed experiment of his 'great namesake,' but which, when submitted to the Ithuriel spear-touch of your intelligent correspondent 'Questioner,' were acknowledged (p. 191) to have been 'non-proven;' and in the second volume (p. 161), we have on record his opinions on the use of the quilt,—not, I grieve to say, couched in the most courteous or respectful terms towards you, sir,—opinions which, being at variance with those of the vast majority of practical apiarians, may now be pronounced to have been rash and untenable. Perhaps, as the possessor of a library containing many works on apiculture, he may give us a compilation from the views of bee-keepers, which may be serviceable; but a simple compilation lacks that *quorum-pars-magna-fui* element, which in a *vivâ voce* narration electrifies and fascinates an audience, and in a book rivets the attention of the reader.

I have, also, heard that another work is in the press, from the well-known pen of Mr. Rusbridge, of Chichester. His unique hive at the Crystal Palace, his contributions to your columns, and the great success of his mode of treatment, induce us to look with some expectancy to this addition to the works on bee-keeping, feeling assured that all will derive

much profit and enlarged knowledge from his able and practised pen.

In the advertisements to the circular of the Bee-keepers' Association, information is given of a series of articles on the management of bees to appear in a weekly paper, which will treat of the subject, it is said, 'exhaustively,' written by a *quondam* contributor to 'our *Journal*;' but who, like Achilles, seems for a time to have left the battle-field. Though we readily admit Mr. Cheshire to be, in the words of the advertisement, 'a scientific and successful bee-master,' yet he will pardon me if I incline to the belief that he will not be able to 'exhaust' the subject. The circular in the prospectus assures us that all the philosophers from Aristomachus to the blind Huber have not been able to 'exhaust the wonders unfolded by the study of the bee,' and therefore Mr. Cheshire need not be disappointed if he also fail to 'exhaust' the inexhaustible.

And now, sir, I hope you begin to apprehend the drift of these remarks. Having from month to month come in contact with your writings as Editor of the *British Bee Journal*, I know that you are, verily, a bee-master, and that you have a profoundly accurate knowledge of the art you profess, obtained by the painstaking practice of many years. We have sat at your feet and recognised your masterly treatment of all matters appertaining to bee-culture; we have seen at the Annual Show your mastery over our little favourites, and we are all content to listen to your teachings. In fact, as bees resent the intrusion of an alien queen while their own is able to perform her functions, we feel a disinclination to submit to the guidance of any but that of our accustomed leader. The time seems to be now ripe for your placing in some more permanent form than that of a monthly journal your views and experience of bee-keeping, and we should all be pleased to have a work from your facile pen on the subject. We may judge, from your plaintive bleatings in the last *Journal* after some of the errant numbers of the first volume, that you are in sadly low water with regard to them. Could you not find time from your abounding duties to give us, as a book, the essence of that volume, expurgating therefrom all those questions and letters with which

'We in our salad days,
When we were green in judgment,'

have so often pestered you? Perhaps you will endeavour to give this matter your best attention, confer a boon on all bee-keepers, and oblige—Melissa.

ARTIFICIAL POLLEN.

I see that 'J. S.' has by chance discovered the identical mode of giving artificial pollen to his bees that I adopt, but which suggested itself to me in the following way. For a year or two I have given this subject my attention, and tried by giving in the hive and out of the hive, in combs and in boxes; but this was not sufficient, as I wished to observe the *modus operandi* of the collecting and packing of the pollen in the corbicular or baskets, therefore I hit on the idea of using the crocus flower as the bowl of delight, being quite sure they would visit these if they would not visit the various boxes and combs I had taken so much trouble in trying to persuade them to visit; and in recommending this mode I am convinced it is the best; and it is astonishing in how short a time the bees will clear off a pound of artificial pollen when placed in the crocus flower, about half a thimble-full in each. I use two large beds of crocuses for this purpose, and the advantages are these: bees continually seek the crocus whether there is natural pollen or not, and so are sure to meet with what is put there for them.

By using the crocus the bee-keeper can in a much more satisfactory way find out which flour the bees prefer, by filling different rows of flowers with different flours. I have tried besides wheat and rye, sago, rice, and potato-flour; the sago and potato-flour they take in preference to the others, potato-flour is easily made, but if not at hand the inside of a dry roasted potato may be substituted.

A better opportunity for observing pollen-gathering cannot be obtained than from filled crocus flowers, as the amount to gather is so great, that a bee will content itself with one flower until completely loaded; and it can thus be seen how a bee moistens the flour by means of honey to cause it to adhere in the baskets, as also how the flour is brushed from the right side of head and thorax, and the left side of the abdomen is deposited in the basket on the right back leg, and the opposite for the other side, while thus engaged the bee takes several flights round about the flower, and its little legs can be seen in constant quick motion.

Another advantage the crocus has is that at night and when the sun does not shine, the flower closes and preserves the stores until the next morn when the sun shines; and this is highly important, as it is an early spring flower, and they should be grown in hundreds, as they are a sunshine flower. So may we reverse the nursery rhyme which so delighted us while in infancy, and which is always set forth as showing an example of diligence:—

'How doth the little busy bee improve each shining hour.'
Watts.

to

'How doth each shining hour improve each little busy bee.'
Nyborg.

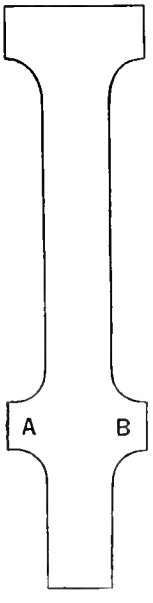
J. S. Wood.

EGYPTIAN BEES.

I see one of your correspondents wants to know the peculiarities of the Egyptian bee; if he would like to know, he had better get a stock, and he will very soon get without them. I never kept any, but the late Mr. Woodbury had them a short time, also a gentleman near Leeds but I don't just now recollect his name; also a Mr. Benley, near Brigg, North Lincolnshire, whose pen I am sorry to say has been silent for some time, but hope again to see his letters, which were read with pleasure in the *Journal of Horticulture*. I remember his stock from the Nile country, he was manipulating with them (bee-dress on of course); and after he had left them, and they could not find any one to wreak their vengeance upon, they went into a potato-field, a quarter of a mile away, and, if I mistake not, drove the men out of the field. They are very vicious, and less and darker than our English bee.—South Lancashire Bee-Keeper.

GENTLE FEEDING. — FIRMNESS OF FRAMES.

I trust this will find you and yours flourishing, in spite of the severe winter and spring we have experienced. My hives (five in number) are all in good condition, so far as I can judge with out opening them. I saw drones at two hives on April 8th. Of the quilt I can say nothing, as I did not use it, but as to the advantage of slow feeding I can now speak from experience; all my stocks benefited by it, and one owes its very existence in my opinion, to the fact, that almost all the winter it was kept slowly supplied with syrup; the plan I adopted being, to fill a common wine bottle, cork it with a cork not more than half an inch long, and burn just one hole in this with a hot knitting-needle; I found no difficulty in finding bottles just fitting the holes in the top of the hive, and introducing the neck of the bottle partly into the hive has advantages in cold weather. I find placing the common wide-necked feeding-bottles on pieces of half-inch wood, with holes not larger than to feed one bee, or even on very thin slips of wood (*e. g.* such as are used for the sides of maccaroni boxes) with a few holes burnt in them, answer very well. I mention these little devices, not to prevent people using vulcanite plates, but merely to prevent them thinking such plates so necessary that slow feeding cannot be managed without them.* I have during the winter constructed several hives, much like the one I got from you. I saw, however, that to keep the frames equidistant from top to bottom, without some sort of substitute for bottom racks, was practically impossible; even in the hive you sent me, with all its superior carpentry, this was not accomplished; I therefore made the frames 1½ inches wide in the first instance, and then cut away the ends, so as to leave them of this shape. From A to B thus remains 1⅛ inches wide in each frame, so that when the frames are all in position they must be equidistant from each other; further, instead of cutting away the top of the frames, I merely bevelled them off, so that the under surface would be ⅞ inch wide, leaving the top surface the full 1½ inch wide; for the centre frame however, I used one of your cut-away frames, thus leaving two long narrow slits (to afford access to supers); these I cover with a plain piece of board having corresponding slits cut in it, and of course by pushing it a little one way or other, the slits cease to correspond and the supers can be removed; these I make with bottoms of their own, which of course have also slits, like the board I have just mentioned. Soon after I had made the first of these hives I saw a very similar plan for the ends of the frames in the *Journal* (see Lanarkshire Hive). Of course I am a vile plagiarist. I do not think the idea of leaving the top of the frames full width throughout on the upper surface has been hitherto suggested; I think it may have advantages. I should like to see instructions for artificial swarming repeated in May number, for the benefit of new subscribers, the subject is of great importance; the annoyance of losing natural swarms deters many from keeping bees. Make what use you like of these hints.—B. M. B., *Mount Lucas, Philipstown, April* 13, 1875.



* When we first enunciated the principle of slow feeding, we recommended that two or three pin-holes should be punched in plain zinc or tin. Mr. Cheshire's introduction of vulcanite in lieu of the tin is an improvement, as the metal causes a large amount of condensation and moisture in the hive, whereas the vulcanite is non-conducting.—Ed.

CALEDONIAN APIARIAN AND ENTOMOLOGICAL SOCIETY.

Bee-keepers north of the Tweed will be pleased to see from last month's *Journal* that a society for the advancement of bee-culture has been organized in Glasgow in connection with the Glasgow and West of Scotland Horticultural Society, at whose September show it is proposed to have a grand exhibition of honey, hives, &c. This, I am satisfied, will meet the wishes of those who are averse to sending the produce of their bees such a long distance as to the Crystal Palace for exhibition, on account of the risk of damage in transit, want of opportunity or means to accompany it, together with the risk of its remaining unsold after the exhibition. All this, however, will in a great measure be avoided at their local show in Glasgow, as neither the distance nor the time will prevent any from accompanying their exhibits, when, in the event of their remaining unsold, they will be under their own care, to dispose of as they may think proper. I have, therefore, no doubt, when these things are considered, the proposed show will be fully taken advantage of by all Scotch bee-keepers, and will receive the hearty support of all who are interested in and are desirous of helping forward the cause of apiculture.

But, sir, my object in writing you is to direct the attention of you and your readers to the union of the two societies as a means of advancing the cause we all have so much at heart; and I am sure you will agree with me in saying that this union is as it ought to be. Seeing the two are so closely linked together through the agency of their little mutual friends, the bees, they should co-operate most heartily with each other, as it must be patent to every florist and botanist that to have new varieties of flowers there must be bees, and every bee-keeper is well aware that to have honey there must be flowers. Seeing, therefore, the one cannot exist without the other, I think they should be united hand in glove, and so assist the promotion of each other's interests; and I would suggest that wherever there is a horticultural society, there should also be a bee-keepers' society connected with it, and that every such society should be in direct connexion with the British Bee keepers' Association, by subscribing to its funds according to some agreed-on scale, and in proportion to the number of their members, in consideration of which they would be entitled to send two representative members, who would be empowered to vote on all matters brought forward at any of the meetings of the Association.

The Association should also give district prizes, to be competed for annually by the clubs which had subscribed to its funds. In fact, my idea is, the Association should not be composed of individual members as such, but of representatives from Bee-keepers' Societies or Clubs; it should be the centre from which all the others should radiate. The Annual Show of the Association, in my estimation, should not be held regularly in London, but should visit in succession all large cities in the three kingdoms, until the circuit is completed. This would, in my opinion, do more towards the advancement of apiculture than aught else I can think of; it would be the means of raising a keen spirit of rivalry between local clubs, as to which would carry off the Association's honour, and so make their local shows equal, if not superior, to that of the parent society in point of merit, seeing there can be little hope of equalling it in the number of exhibits. And I would further suggest that every member of such societies should become a subscriber to our most excellent *Journal*, which has already done, and is still doing, so much to make bee-keeping what it ought to be, pleasant and profitable; I am convinced that were bee-keepers to act according to the instructions of our worthy Editor, there would be fewer stocks lost in winter and early spring, less dysentery and foul brood, while there would be a marked increase in the honey harvest at the end of the season, and it would be found in a very short time that

> There folk hae bees wha ne'er had bees afore,
> And they wha had, hae noo the more.

I should be glad to hear the views of some of your other readers on these suggestions, as I am of opinion that were these or somewhat similar ideas carried out, they would do much for the advancement of our cause, in bringing about a more efficient and humane system of management and a greater knowledge of that most industrious little insect, the busy bee.—John Wilkie, *Gourock, 12th March*, 1875.

HIVES, HONEY, AND SUPERS.

Allow me to make some observations on matters touched on in last month's number. I have used a bar-frame hive for twelve or fourteen years, and the tops of frames are level with the top of box—simply a strip of ½-inch deal runs between each frame which keeps them in place, and no crown-board is necessary, no difficulty whatever is found in removing the strips, and no notches or anything of the sort are required. My supers are unicomb, very much like the section of your supers, each one holds from 4 to 5 lbs. of honey, and I found them very convenient, easily removed when full, and as easily replaced by others. One advantage is, we are subject to a great deal of blight in July, which the bees will bring home, and the supers being filled at that time are of very bad quality. The last year or two I have introduced a moveable bar in the centre of the frames, which I have found advantageous generally in the autumn; the top part of the frame is filled with honey and the bottom empty, the moveable bar with the empty comb attached to it is reserved for the next year, and put in top part of frame and another bar put in centre, or it may be given to the stocks taken up in the autumn. I think it would be an improvement to your Cottage Woodbury; the combs too are kept straighter by it. In hiving swarms I always use a tea-tray, or something of that sort, one of an oval shape is the best, I place the hive in the most convenient place, if ten or twelve yards off it don't matter, raising one side a little, and if the hive is about 4 inches from the ground, and the tray with bees on set a little on the incline, the top end touching the floor-board of the hive, not a single bee need be killed in the operation; sometimes I remove the old stock a few yards away and set the empty hive on the same stand, and the matter is finished at once, and the swarm is the stronger for it.

Several years ago I had an idea of making a super in sections. I made a kind of trough with three pieces of board about 6 inches deep, and made seven wood frames 2 inches wide to fit in the trough, with the necessary apertures for the bees to get in. One frame was put in first with a pane of glass cut same size on each side of it, afterwards others were added to it, and the glass withdrawn and put at the end as the work went on; but I did not like it so well as the unicomb super, so did not continue with it.*—P. *of Warwick, April* 14, 1875.

THE BRITISH BEE-KEEPERS' ASSOCIATION.

This Association, composed as it is of some of our most eminent and practical apiarians, is (to quote the pamphlet issued by the honorary secretary) 'for the encouragement, improvement, and advancement of bee-culture.' Now, with a view of promoting this end thoroughly, it appears to me that one of the best means to accomplish this would be to give the members of the Association the opportunity of meeting as often as possible, and thus enable them to confer together, when, by mutual change of ideas and suggestions, no doubt the progress of the science would be greatly advanced. I confess I am not sanguine that much progress towards a high point will be made in the bee-cultural lore by having only one general meeting in the twelve months. I trust some (and of these not a few) members of the Association will think with me, that their interest and practical knowledge will be greatly enhanced, if they could be brought more often into contact with the experienced and practical members of the Society; and believing this, will kindly, though firmly, exert their influence, so that Rule 7 shall be altered to the effect, 'That the general meetings shall be holden at the least four times in each year for the mutual advantage of its members generally.'—Chas. H. Edwards, *April*, 1875.

THE COMING SHOW.

It is a pretty tolerable illustration of the adage 'taking time by the forelock,' to offer suggestions with reference to our forthcoming Show at the Crystal

* Our sectional super may be made unicomb, by dropping a pane of glass between each section.—Ed.

Palace in September next. We must all do our best in the endeavour to make it a greater success, if possible, than that of last year. I, for one, very much regret that it will not be held in connexion with the Fruit and Flower Show. The attractions of the two combined would be simply irresistible.

As apiarians, desirous of extending the science, it is to our especial interest to secure as large an audience as possible. Very probably many who will commence bee-keeping this season came to the Show merely to see the flowers and fruit, and so were attracted by our exhibits to inquire into the ways and means necessary to keep bees successfully; but, for seeing which, they, in all probability, would never have thought of the matter.

Held by itself, on its own merits, our Show of 1875 can hardly be expected to secure as large a number of visitors as last year. That is my opinion. I sincerely trust the result will prove me greatly in error. A contributor in the current number has, I see, offered some very good suggestions to intending exhibitors. If within the bounds of possibility, we must fix a standard price for honey, both extracted and in the comb. Anything that will tend to depreciate the value should be avoided. For instance, a purchaser would naturally be dissatisfied, however reasonably he secured his bargain, if he were to witness honey sold by auction at, say, half or two-thirds of the price he just paid.

An exhibitor of hives, or of any invention calculated to further the ends of bee-keeping, should be at liberty to explain their merits personally to the judges on their tour of inspection. The somewhat hasty way in which many exhibits were passed over prevented their being duly appreciated. The judges were most certainly courteous and obliging; still, the amount of work before them necessitated a certain degree of haste. This year, perhaps, we may have a greater number who will give their services for this end.

Ere I conclude, I venture to express the hope that the printing firm located within the Palace will be so good as to refrain from favouring me with any more of their very gratuitous missives. Perhaps other exhibitors may endorse this. To be more explicit: I had a number of circulars (I think about a thousand) printed for distribution. On hearing of this, the Palace firm sent a peremptory note, to the effect that they could not allow me to distribute them within the sacred precincts of the Palace. I mention this, not so much on my account as to ascertain how it fared with other exhibitors that chanced to come under their distinguished notice. Most of the exhibitors of hives had pamphlets, circulars, or handbills with them—this much I know to my certain knowledge. Even our own *Journal*—at once the best and first of its class in the world—was at once conspicuous; and, moreover, our genial Editor was at hand giving copies, with his wonted courtesy, to applicants. Being too busy at the time to question their authority on the matter, I take this opportunity of mentioning it before it passes my memory, in order that it may come under the notice of the firm for whom it is intended. For their especial information, I may also add that I shall be an exhibitor at the Show of 1875, and I intend having pamphlets, or circulars, printed relative to bee-culture, *not* at their press, but elsewhere. I have also a work on this subject now in the press, copies of which will, in all probability, be there; and if they mean to put a veto on the sale or circulation let them try it on.

At the same time, I very readily admit that the Palace Company should possess the means of restricting the circulation of printed matter (where objectionable) within their jurisdiction; but on all innocent affairs relating to apiarian science, they, or their subordinates, most decidedly have no need to be consulted in the matter.—Alfred Rusbridge, *Sidlesham, Chichester, March* 27, 1875.

Foreign Intelligence.

FRANCE.

Very favourable hopes are entertained all over the country as regards the forthcoming season. The bees have wintered well, and breeding having commenced in good time and under favourable circumstances, it is anticipated that swarms will be had in good number. The last few years having been very poor in this respect, swarms for next season are already being booked for high prices.

The remarkable monograph by the Pole Mr. Girdwoyn, to which we referred in our January number, has now been published in Polish. The French edition of this work will be proceeded with immediately.

Also the Polish language has now its bee journal. Its name is *Bartnik Postepowy* (*The Rational Bee-keeper*). It is published twice a month by Dr. T. Ciesielski, at Lemberg, Austria.

The French Société d'Apiculture is now amalgamated with the Société d Insectologie, the new name assumed being Société Centrale d'Apiculture et d'Insectologie. At a recent sitting of the above-named Society, Mr. J. Weber called the attention of the assembly upon the advantages that could be derived by the Railway Companies and the country generally, if apiaries were stationed along the railway lines where suitable spots for the purpose offer. The idea having been brought to the notice of the various Railway Managers, the latter have declined on the plea of possible accidents occurring. Mr. Weber further submitted that the hive he would suggest for the purpose, would render such probability impossible, and urged reconsideration of his plan.

A slight reduction in the price of honey is advocated, with a view to favour consumption, the object being to clear up stocks before the new season begins.

ITALY.

Foul brood continues to occupy largely the attention of the bee community, and a special inquiry to investigate the subject has been opened at Pavia.

Among the prizes offered by the Central Bee Association for the encouragement of Bee-culture this year, there is a gold medal for the best apiary that may be established during 1875, consisting of no less than 300 stocks on the rational principle, with bar-frames of the Italian standard measure.

A list of all the members of the Association is to appear shortly.

Owing to a delay in the publication of the Prospectuses, the subscription list of the Industrial Bee Company was to remain open to the end of April.

According to recent calculation, the annual bee produce throughout Italy is estimated between six and seven millions of francs.

ECHOES FROM THE HIVES.

Liverpool, March 29.—'I am glad to say that the prospects in this locality are good. My own apiary never promised better. I hope it may result as I expect, for the last two years of bee-farming must have discouraged many.'

Swanley.—'I am glad to inform you that the stocks I piled up with "marine stores" have wintered well, no signs of damp and no losses from any cause. They are working away merrily, gathering pollen from the palm.'

Q. Q.—'I have been wintering both on the quilt and no-quilt systems. With the quilt I have not a suggestion of dampness on wall, floor-board, or frames, but the comb I send you is from a hive without the quilt. The hives are under precisely similar circumstances, and are equally sound in themselves, but in this hive the walls, floor-board, and crown-board are in places quite wet and largely covered with white and green mould.'

Gourock, April 6.—'Weather still unfavourable for bees; we have had only a few good days since beginning of last month.'

Leominster, April 6.—'Bees have remained indoors every day except Sunday for a week, when they only came out for a short time.'

Banbury, April 8.—'Mr. Symington of this place has a stock of English bees, which he has fed with syrup and pollen, and supplied with water during the winter, which had drones flying on the 8th of March last. It seems remarkable early, and he considers it strong enough to take a swarm from at any time now.

Altrincham, April 9.—'We have very wretched weather for the bees; no bloom out, and withering N.E. winds.'

Halwell, South Devon.—'Bee-keeping is very far behind in this part of South Devon. People think nothing will do but to let them swarm, and then burn or smother them in the fall of the year for their honey. I should like to learn how to save them alive.'

Forest Hill, April 11.—'This weather will never do for us, as it looks more like ice than honey. I think my stock is as strong as it can be, and in fine weather the bees came out in swarms (?). I continue to give them barley-sugar, the weather being so very bad.'

Westbury-upon-Trym, Bristol.—'I had the pleasure of killing the first queen-wasp on the 17th of this month. I never remember one so early in this part of the country. If all our friends will try and do the same, it will save much trouble later in the season.'—H. W. C.

'*Blantyre, April* 21.—We have had ten days of the finest weather, for the season and bees, on record, the thermometer occasionally rising to 75° Fahr. in the shade; but a change has occurred again.'

Queries and Replies.

Query No. 121.—I shall esteem it a favour if you will kindly write me a reply to the following queries, as I shall want the information before your next issue appears. I am afraid you will think me very troublesome in asking so many questions, but I expect to improve in that respect after I have been a short time under your tuition.

1. Would honey in *sealed* comb, taken from a hive affected with foul-brood, be injurious if run from the comb and given to the bees as food?

2. Would it be safe to make wax-sheets from the combs of a hive attacked by the above disease?

3. In the April number of the *Bee Journal* you say wax-sheets should not be more than 2 in. deep, now would it not save the bees a great deal of labour and time, which to the bee-keeper means honey, if the frames were filled or nearly filled with the impressed sheet, the foundations of the cells being ready made and the bees having a lot of surplus wax to economise?—W. J. W., *Dublin, April 6th*, 1875.

Reply to Query, No. 121.—Honey taken from a foul-broody hive can never be depended on as safe food for bees, unless it has been well boiled and skimmed before being administered to them.

The wax melted out of the combs from foul hives will not convey the infection when used as you propose.

If frames were filled with wax sheets as suggested, and a swarm of bees placed amongst them, which of themselves will generate heat sufficient to cause melted wax to exude from their sides, what would become of the sheets? If the bees could be induced to begin at the top only, and gradually work down, all would be well, but they would work upon it all at once, and most probably cause it to sag or belly out most awkwardly.—Ed.

Query No. 122.—The hive into which I introduced the Ligurian queen you sent me is doing first-rate, building fast and getting strong in bees, and if the weather is anything propitious I shall have a very early swarm off it. I am naturally desirous of getting as many swarms as possible from it, but being in a skep I cannot control it or save the young queens, and I should be obliged for your advice on what is known as the Köhler method of increasing swarms of Italians. He recommends stimulative feeding to make it swarm first—I am attending to that—'After the first swarm has made its exit put the stock in the place of another populous colony. In nine or ten days it will swarm a second time. Shift again to the stand of the next strongest colony, in two or three days it will swarm again; and the process is to be continued so long as queens are heard piping. In this way ten or twelve swarms may be obtained, as the first hive supplies the queens and the others the bees.' As I have two or three good skeps of black bees, I could carry out that method, so far provided it would work satisfactorily. If I got five or six swarms headed with Italian queens I shall be pleased, even although the bees will be mongrels this year, for by dethroning all my black queens at the end of the season and introducing Ligurian, I'll get the whole stock pure by another year. Will you be kind enough to give your advice on this method or any other plan that will succeed?—J. S., *Arbroath.*

Reply to Query, No. 122.—We do not approve of the Köhler method, because in each exchange of hives there is the possibility that the returning bees, coming suddenly into a strange domicile, will destroy the queen-cells therein, and so defeat the object in view.

This might not happen at the first remove, and if it did, the bees could repair the mischief, having eggs and young larvæ in the hive so that only a little time would be lost in raising new queen-cells; but if the catastrophe occurred on the second removal, the damage would be irreparable, and the stock would suffer until a new queen could be obtained. In all bee-keeping operations, it is well to avoid, as far as is possible, everything that depends upon chance, and hence we would proceed upon a more sure footing than that proposed by M. Köhler. In the first place, we would obtain a bar-frame hive, as simple and inexpensive as possible, and five days after the swarm came off, would transfer the combs and bees from the skep into it, taking care not to

damage any of the queen-cells, but carefully noting their number and position. On the same day we would make as many artificial swarms from the black stocks as we had queen-cells, less one; and two days after, when removing the tapes and laths used in transferring, we would cut out the queen-cells from the Ligurian combs, and put them, one each, into the hives from which the artificial swarms have been taken. By this method we should accomplish with certainty, what, by the Köhler method, would be doubtful; and there would be this great advantage that the swarms would all contain fertile queens, and should there by any chance be a queen-cell destroyed, or which did not hatch out its princess, these would in each case be the black brood to raise other queen-cells upon, so that the risk from the uncertainty of bee-temper would be nullified. A further advantage would be the non-production of black drones such as would occur if the old queens were left in their hives; but, on the other hand, the drones (if any) produced after the operations would all be Ligurian, which would add much to the chances of pure impregnation, if a change were again effected in autumn.—Ed.

NOTICES TO CORRESPONDENTS & INQUIRERS.

Bourton on the Water.—The aspect E.S.E. will do admirably during the summer, and in winter the hive can be slewed more to southward, using, as it were, the hive entrance as the pivot; easterly winds cannot then blow directly into it. Being immediately under a wall, the shade on summer afternoons and evenings will be welcome to the bees. The methods of hiving, described on outside page of Carr-Stewarton advertisement are correct, and either may be depended on.

J. Oliver.—'Subscribers of 10*s.* 6*d.* per annum have the right to immediate advice per post in all their difficulties with bees. Others receive replies through the *Journal* in the usual way. Letters for insertion on any subject of interest connected with bee-culture are welcome from all alike; and if not personal or libellous, will assuredly be published, although pressure of matter may occasionally produce delay in their appearance.

All letters requiring replies must be accompanied by stamped-directed envelopes.

H. W.—Young Ligurian queens *will* find fresh blood to mate with, if possible, and instances have been known where black drones did not exist nearer than five miles, except when on the wing, yet even that distance was no barrier to the bride's freedom of choice.

R. S.—Many thanks for so kindly sending the required *Journals*. By your thoughtful assistance we have been enabled to supply the requisite copies to the libraries. Again, thanks.

Castle Ashby, Northamptonshire.—The measurements of the hive will be found in Vol. I. of the *Journal*.—Adapting boards, if in narrow strips, do not warp appreciably.—Bees do build nearer to a narrow bottom rail than to a wide one.—Cut the notches out of your hive by all means; any time is a good time to rid oneself of such inconveniences.—Thanks for subscription received.

T. R., Jun., Grantham.—Your wishes in most respects have been complied with. Is it not possible to remove the crown of your over-full skep and unseal some of the honey cells, which you cannot, as you say, now get at. If some sticks be thrust through the hive and combs, as directed in reply to query, p. 178, to prevent them falling, the straw top of hive might be safely cut away to a level, and the whole of the cells unsealed; then apply a narrow eke to give the bees room to build, and thus use up the honey, and put on a wooden crown-board with numerous perforations, so that you may not be in the same *fix* again. Supers should be applied as soon as the comb is built in the eke. To save trouble and give the bees room to retreat while operating, the eke might be applied first. There must be no violence used, or the ends of the combs will become detached from the walls of the hive and probably fall out of position.—Queen-bees continue fully fertile for three seasons. When three years old their powers begin to fail.

J. W. P., King William Street.—You evidently did not observe the foot-note on page 199. Your questions are all replied to, save with regard to—

Artificial Swarming.—An artificial swarm may be made at any time when there is a sufficiency of bees, and it is not necessary to place combs in the bar-frame hive to induce them to stay in it. To make a swarm from a skep, blow a little smoke into the hive, amongst the bees; invert it, and set it on a convenient chair, tub, or pail, then fix an empty hive, with its edge resting on the edge of the full one, at its highest point, which should be at the ends of the combs, drum the sides of the lower hive with the palms of the hands, and in a few minutes the bees will begin to ascend, and presently the queen will be observed trailing her long body in a waddling way over the bees, evidently in haste to reach the security offered by the upper hive. As soon as her majesty is observed ascending, the drumming should cease, and the upper skep should be at once removed. If it is intended that the swarm shall remain in the skep, place it immediately upon the stand from which the full stock was removed, taking the latter to a new location, but if they are to be put into a bar-frame hive, set the latter there, and raising the hive, proceed as in hiving natural swarms, only be sure that the queen is placed within the hive. An early artificial swarm may be made by driving the whole population from a full hive, and setting the latter in place of a second full stock, and the driven bees on their own stand. Artificial swarms from bar-frame hives are made by lifting out the comb upon which the queen is parading with her bees, and placing it in a new hive—near to one side, one or two empty frames only being between. The full hive is then removed, an empty frame being put in the place of the one abstracted, and the hive containing the queen placed in its stead. To improve the weak stock of bees, give them a comb of brood from a strong stock, and feed gently and continuously.

Sand Bees.—Can any of your readers tell me how to get rid of Sand-bees, which have covered a bank twenty yards in length, and whether they are likely to prove enemies to a hive of bees situated near them?—*Farnborough, April* 15th.

Notice.—We are sorry to be compelled to decline further orders for the cheap bar-frame hives. We have invited early orders during the whole of the winter, and have supplied hundreds of the hives. Like skeps they require making, and it is impossible for us now to make them in time to be of service this season.

*** We regret that the delivery of queens from Italy and Switzerland is so long delayed, and can only surmise that the weather prevents queen-raising.

Extraordinary pressure of matter has induced us, at a late hour, to add four pages to our *Journal*, by way of Supplement, which has caused a slight delay in publication. We much regret that the temporary loss of a parcel of engraved blocks in transit has prevented the description and illustration of Danish and other queen-cages; also that several other important matters must be deferred to our next.—Ed. *British Bee Journal.*

BRITISH BEE-KEEPERS' ASSOCIATION.

COMMITTEE MEETING, April 15, 1875.

Present—Messrs. Atlee, Hooker, Cheshire, and Hon. Sec.

THE Hon. Sec. reported he had arranged with the Secretaries of the Linnean Society for the Conversazione to be held at their rooms at Burlington House on Wednesday, the 5th of May next at 6 p.m.

The consideration of the Prize Schedule for the next Exhibition was then proceeded with, and, subject to further revision and discussion, was eventually arranged as follows, viz.:—

SCHEDULE OF PRIZES.

Class	HIVES.	Prizes.
1	For the best hive for observation purposes, all combs to be visible on both sides	40/0 & certificate
2	For the best and cheapest skep for depriving purposes	20/0 & certificate
3	For the best moveable comb hive (to include covering) for depriving purposes	40/0 & certificate
4	For the best hive for use on the storifying principle	40/0 & certificate
5	For the best hive for use on the collateral principle	40/0 & certificate
6	For the most economical (best and cheapest) complete hive on the moveable comb principle for cottagers' use...	40/0 & certificate

Each exhibitor must be prepared to guarantee that he will supply any number of similar hives at the prices affixed to his exhibits. The prizes will only be awarded on this understanding.

BEES.

7	For the best species or variety of honey bees (capable of cultivation in England) other than the Ligurian or black bee	40/0

The bees to be exhibited living in observatory hives.

HONEY.

8	For the best exhibition of super honey from one apiary	60/0	20/0	10/0
9	For the best straw super of honey— 40/0 30/0 20/0 15/0	12/6	7/6	5/0
10	For the best wood, or wood in combination with glass or straw, super of honey ... 40/0 30/0 20/0 15/0	12/6	7/6	5/0
11	For the best glass super of honey— 40/0 30/0 20/0 15/0	12/6	7/6	5/0
12	For the best display of honey in comb for table use	40/0	20/0	10/0
13	For the best exhibition of run honey, in glasses of 5 lbs. to 10 lbs. each ...	20/0	12/6	7/6
14	For the best exhibition of heather honey in supers	20/0	12/6	7/6
15	For the best exhibition of honey obtained by the use of the honey extractor from one apiary	20/0	12/6	7/6
16	For the best exhibition of honey in supers, or sections of supers, each separable and singly, not more than 3 lbs. in weight...	30/0	20/0	10/0

COTTAGERS' CLASSES—(No Entrance fee.)

17	For the largest and best exhibition of super honey in comb, the property of one exhibitor, and gathered by his own bees ...	40/0	30/0	20/0	10/0	7/6	5/0

Class		Prizes.
18	For the best super of honey— 30/0 20/0 15/0	7/6	5/0
19	For the best exhibition of run honey in glass jars, containing 5 lbs. to 10 lbs. each ... 30/0 20/0 15/0 10/0	7/6	5/0

All the honey and comb exhibited in the above classes must be *bonâ fide* the produce of 1875, and gathered by the bees in the natural way in the United Kingdom.

COMESTIBLES.

20	For the liquor or wine made from honey, with recipe attached	40/0
21	For the best sweetmeats made from honey, with recipe attached	20/0
22	For the best cakes made from honey, with recipe attached	20/0

MISCELLANEOUS.

23	For the best and largest collection of hives, bee-furniture bee-gear, and apiculturists' necessaries, no two articles to be alike	40/0 20/0 15/0
24	For the best drone-trap	20/0 & bronze medal
25	For the best bee-feeder, the invention or adaptation of exhibitor	20/0 & bronze medal
26	For the best bee-dress	20/0 & bronze medal
27	For the best method of quieting bees during manipulation	20/0 & bronze medal
28	For the best and cheapest supers for general use in an apiary	20/0 & bronze medal
29	For the cheapest, neatest, and best supers for producing honey-comb in a saleable form	20/0 & bronze medal
30	For the best honey-extractor, portability and cost to be taken into consideration	40/0 & bronze medal
31	For the best machine for embossing wax-guides, with at least six sheets manufactured by it	20/0 & bronze medal
32	For the best exhibition of pure bees' wax, the produce of 1875, in cakes of not less than 1 lb. in weight ...	10/0 7/6 2/6
33	For any new invention calculated in the opinion of the judges to advance the culture of bees—	Silver or bronze medal at the discretion of the Judges.
34	For the best and most interesting collection of natural objects connected with apiculture, illustrating the natural history and economy of the honey bee—	Bronze medal
35	For the best MS. lecture on the honey-bee or bee-keeping, with or without diagrams, the prize MS. to become the property of the Association ...	Silver medal
36	For the best micro-photographic slides, suitable for use in magic lantern, illustrating bees	20/0 & bronze medal

Every hive or miscellaneous apparatus substantially the same article as exhibited last year must have in its construction a distinct improvement in the opinion of the Judges worthy of another prize; without such, and in case it should again be adjudged as the best of its class, the certificate only shall be given, but the fact of the two adjudications shall be stated on it.

Eaton Rise, Ealing. JOHN HUNTER, *Hon. Sec.*

PRIZE FUND, 1875.

PAID.

	£	s.	d.
Bayly, R., Esq.	1	1	0
Corbet, Rev. A.	1	0	0
Fletcher, C. E., Esq.	0	5	0
Legge, Hon. and Rev. A.	1	1	0
Page, Esq., Henry	0	5	0

PROMISED.

Cheshire, F.	2	2	0
Crystal Palace Company	25	0	0
Cressy, Miss A.	0	5	0
Carr, W. B., Esq.	0	10	6
Cowan, T. W., Esq....	5	0	0
Bligh, Hon. and Rev. H.	1	1	0
Melladew, E., Esq.	5	0	0
Power, Henry, Esq.	0	10	0
Stracey, Rev. W. J....	0	10	0
Total ...	£43	10	6

PROPOSED SCHEDULE OF PRIZES FOR THE MANCHESTER BEE AND HONEY EXHIBITION.

CLASS A.

1. For the largest and best results obtained from one stock of bees, managed on any system, either swarming or non-swarming	80/0	40/0	20/0
2. For the best and heaviest hive filled by a single swarm of 1875	60/0	40/0	20/0
3. For the best and heaviest hive filled by a second swarm or turn-out of 1875	40/0	20/0	
4. For best straw or wood super of honeycomb above 20 lbs.	40/0	20/0	
5. For best glass super above 20 lbs. ...	40/0	20/0	
6. For the best wood or straw super above 10 lbs.	40/0	20/0	
7. For best glass super above 10 lbs. ...	40/0	20/0	
8. For best glass super under 10 lbs. ...	20/0	10/0	

All the above to be products of this season, exhibited without bees, and their weight (gross and tare) ticketed on them.

9. For the best and neatest observatory or unicomb hives	60/0	40/0	20/0
10. For the most ornamental hive (of glass or glass and wood)	40/0	20/0	

The above (9 and 10) to be exhibited with bees in them.

11. For best sample of 10 lbs. of run honey	10/0		
12. For the best three cakes of wax, not less than 1 lb. each	10/0		

CLASS B.

13. For best bar-frame hive	20/0		
14. For best straw hive	20/0		
15. For best and largest collection of hives, bee-furniture, and other necessaries for an apiary; no two articles alike	100/0	40/0	20/0
16. For a collection of the best and cheapest supers (empty) for general use in an apiary	20/0		

This Schedule has been planned and written out with a view to make the bee and honey corner of the Exhibition at the Manchester Botanical Gardens next September, as interesting as possible to visitors generally, and profitable and instructive to bee-keepers. About 10*l.* are offered for glass hives exhibited with bees in them, which generally please spectators. As the Show will last three days, arrangements will probably be made for the bees to fly abroad. If the weather be fine, the bees flying about may smell the honey hives exposed for view. In such a case the bees would have to be confined to their hives, for it would not do to let visitors be startled and frightened by bees.

The Schedule is, of course, subject to improvement or alteration. If more than 50*l.* can be obtained by promise, more or larger prizes will be offered; and if any gentleman or number of gentlemen combined, would like to see any question in the management of bees fairly tested, and consent to give a prize for that object, we shall be glad to offer it in the Schedule.

At the Manchester Exhibition there is no entrance-fee required, and the prizes are given at the close of the last day. Entries and inquiries will be received by Mr. SAMUEL YATES, 16 Old Millgate, Manchester, or myself, up till the Saturday before the opening day, which, I believe, is the 2nd of September.

All competitors and exhibitors will be permitted to sell their exhibits in the Gardens.

A. PETTIGREW, Sale, Cheshire.

OUR WANT AND SALE COLUMN.

For Particulars apply to C. N. ABBOTT, Hanwell, W. London.

No.		s.	d.
126	A Langstroth hive, in first-rate order, never been used, outer case inch thick	40	0
127	Two Pettigrew ekes, fit 18 in. hive ... each	1	0
131	Several tin fumigators, quite new ... each	2	0
133	'The Management of Bees.' By Samuel Bagster. 244 pages and 40 illustrations. Post-free	6	0
134	Wanted. — A clean copy of the *British Bee Journal* for June 1874.		
135	Wanted.—Three or four supers of last year's honey. Good. Eight to twelve pounds each.		
136	Three hives of hybrid Italian bees, in boxes with glass windows on three sides—very healthy—with young queens of last summer, will travel any distance, Somersetshire, each	40	0
137	Wanted —The October No. of the *British Bee Journal* for 1873, 6*d.* sent on receipt of postcard		
138	For Sale.—One or more strong stocks of pure Ligurian bees, in Woodbury frame hives, Dublin ... ... each	50	0
139	'American Nest Hives' (by K. B. Edwards), set of four, with ekes, &c., complete, new ...	12	6
140	Aston's drone trap, new	3	6
141	'Full and Plain Directions for the Management of Bees to the greatest Advantage.' By the old and able author, John Keys. Post free, in excellent preservation	7	6
142	Wanted.—A fertile queen-bee, to introduce to a queenless stock. Pure Ligurian preferred. Chichester.		
143	Two 10-frame hives, projecting ends to frames. one window with three glasses, outer cases, super-cover and roof, floor-boards, crown-boards, and quilt ... ... each	25	0
144	For Sale.—Four swarms of hybrid Italians, sometime in May ... ... each	20	0
145	Taylor's 'Manual of Bee-keeping'	2	6
147	One stock of hybrids, Ligurian mother, double-cased hive, with stand, roof, and cover. Leamington	55	0

WANT AND SALE COLUMN—CONTINUED.

No.		s.	d.
148	For Sale.—Strong swarms in straw hives in May and June. Lincolnshire ... each	15	0
149	Wanted.—To buy or borrow Vol. 1. of the *British Bee Journal*. Mr. Harvey Wall, Rashwood, Droitwich.		
150	Wanted.—Clean new straight worker comb—any quantity. J. F. Newland, Wandsworth Common.		
151	Good useful bar-frame hive, same size produced 70 lb. super honey last year (used)	7	6
152	Wood and straw hive, 9 frames, deeper than Woodbury (used)	7	0
153	Woodbury wood and glass super, hold 30 lbs., baize cover included (used)	7	0
154	Queen-rearing nucleus hive, as used in Switzerland (used)	2	6
155	Good Woodbury hive, dovetailed, inch thick, 10 frames (used)	6	0
156	Woodbury glass bar super, good condition, hold 30 lbs.	8	0
157	Transferring board, equal to the best	7	6
158	Roofs, simple but efficient, not new, one dozen	12	6
159	Woodbury floor-board, clamped	2	0
160	Honey slinger, takes Woodbury frames, not quite new	30	0
161	'The Female Monarchy.' By Rev. John Thorley, 1744, 206 pages	3	6
162	Huish on Bees, 1844	2	6
163	Murphey's Honey Extractor direct from the maker	70	0
164	Plain Woodbury hive, with top and floor-board complete	5	0
165	Second-hand Cottage Woodbury hive (Symington's)	15	0
166	The Abbott hive, new shape, second-hand ...	17	6
167	Second-hand hive, with 6 frames, Woodbury size, double-cased	5	0
168	Forty queen-boxes, twopence each, or the lot ...	5	0
169	Octagon super, wood and glass, to hold 25 lbs.	5	0
170	Large 13-frame hive, with frames, Quinby size, double-cased front and back, with glass front and 2 division boards	15	0

OUR WANT AND SALE COLUMN—*Continued.*

171	Glass unicomb hive, mahogany frame-work, to hold 3 frames, Woodbury size	25	0
172	Nucleus hive, with Cheshire's twin frames ...	4	0
173	Small bee-house, to hold 2 hives, stands on four legs, and has doors at back	15	0
174	Woodbury super, with glass top and sides, mahogany frame, and adapting board ...	7	6
175	Two Octagonal supers, to hold 25 lbs. each, wood and glass	10	0
176	Neighbour's improved Cottage hive, second-hand, minus the 3 bell-glasses	15	0
177	Single frame unicomb hive, for exhibition purposes	7	6
180	Three Octagon boxes, each with glass window and shutter, to use on the storifying system	10	0
181	Large Octagon box with 3 windows and shutters, has been used as a nadir	5	0
182	A Major Munn hive with glass frame for observation purposes. Good as new, half-price ...	42	0
183	A Woodbury ten-frame hive, new last year, with floor and crown boards, two glass windows, shutters, stained and varnished, cost 25*s.*	10	6
184	One of Neighbour's Improved Cottage hives ...	5	6
185	Indiarubber Gloves, cost 6*s.* 6*d.* last year ...	5	0
186	Wanted,—A second hand closed in bee-house, that will contain four hives.		
187	For Sale,—One 18-in. Pettigrew	3	6
188	,, One 20-in. ,, ...	4	0
189	,, Two 20 in. nearly new	5	0
190	,, One 18-in. ,, ...	2	0
191	,, One 18-in. Yates' hive, nearly new, with new eke	2	6
192	Wanted,—A large quantity of straight worker comb, Birmingham. State price, &c , to Editor.		

BEES, HIVES, BEE FURNITURE.

TIN SHOVELS, 8*d.* each, post free, our own invention, for use with the Feeding Bottles.

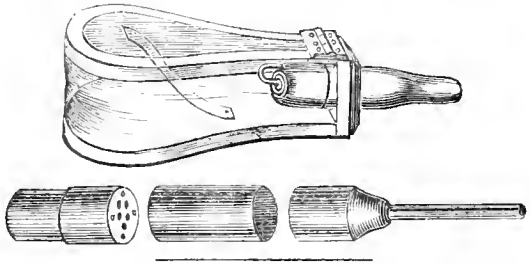
FEEDING BOTTLES, 6*d.* and 1*s.* each.

THE KNIFE SCRAPER, for cleaning floor-board hives, frames, &c., a speciality—spring steel, useful as a honey knife, or in lieu of a tin shovel for feeding. 2*s.* 6*d.* post free.

ORDERS also received for the famous CARR-STEWARTON HIVE, which obtained First Prize and Certificate at Crystal Palace, as the best hive on the storifying system. For particulars see fourth page of *Journal*.

OUR HONEY KNIFE. New Pattern. Post free, 3*s.* 6*d.* Best elastic steel.

THE BEE QUIETER, the invention of the Hon. and Rev. Henry Bligh. Price 2*s.* 6*d.* Fumigator to match, 1*s.* 6*d.*



PURE imported LIGURIAN QUEEN BEES, at various prices as usual. *See* Special Advertisement.

SWARMS of Bees, headed by imported Ligurian Queens, 42*s.* each, in the Spring.

ORDERS received also for 'Langstroth on the Hive and Honey Bee,' price 10*s.* 6*d.* post free.

C. N. ABBOTT, EDITOR *British Bee Journal*, HANWELL, W. LONDON.

PHACELIA SEED.—Strongly recommended as Bee-pasture. See *British Bee Journal*, Vol. I. p. 199. Packets 1*s.* and 2*s.* 6*d.* each, free by post from W. R. UNDERWOOD, East Thurrock Rectory, Grays, Essex.

Should be sown in succession for the next three months.

Just out.

The 'British Bee-keeper's' Microscope.

A useful and popular Instrument, well adapted for all Microscopic purposes.

It consists of a firm Stand, with Brass Uprights, coarse and fine Adjustments to the Body; ¼-inch Achromatic Object Glass, dividing to ⅛ and 1-inch; Stand Condenser for opaque objects; Diaphragm; Life-box; Stage and Dissecting Forceps. Complete, in Mahogany Cabinet, £3 10*s.*

Brass Stand Microscope, of similar construction to the above, two Eye-pieces of different powers; ¼-inch Achromatic Object Glass, dividing to ⅛ and 1-inch; also a 1-inch wide Angle Object Glass, for large objects; Stand Condenser; Diaphragm; Stage and Dissecting Forceps. Complete, in Mahogany Cabinet, £4 4*s.*

Binocular Bodies, with Rack Adjustments, adapted to the above, extra.

Polariscope, and other apparatus, can also be fitted.

J. W. DEACON, Optician, High Street, Sydenham.

THE TRUE STEWARTON HIVE, consisting of Two Stock-boxes and Super, 12*s.* 6*d.*; or Three Stock-boxes and Two Supers, 21*s.* Send Post-office orders to JAMES ALLAN, Stewarton, Ayrshire.

IRELAND.

BEE-HIVES AND BEE-FURNITURE.

A large and varied Stock at

EDMONDSON BROTHERS,

Seed and Implement Warehouse,

10 DAME STREET, DUBLIN.

BEE HIVES.

PETTITT'S METAL RACK BAR-FRAME BEE HIVES for easy Manipulation.

MAJOR MUNN'S Patent BAR-FRAME HIVE.

Ligurian Bees of the Purest Race—Imported Queens—Swarms and Stocks—English Stocks or Swarms. See Illustrated Catalogue, Post Free, 2*d.*

Please address W. J. PETTITT, Apicultural Institute, Dover. Apiaries at Snargate Street and Hardwick Road.

THE

British Bee Journal,

AND BEE-KEEPER'S ADVISER.

[No. 26. Vol. III.] JUNE, 1875. [Published Monthly.]

Editorial, Notices, &c.

THE COMING SHOW AT THE CRYSTAL PALACE.

The Committee of the British Bee-keepers' Association held their final meeting for the revision of the Prize Schedule for the second Annual Bee and Honey Show, to be held at the Crystal Palace on the 21st, 22d, and 23d September next, on Thursday last, when, as will be seen by the Schedule, which we now publish, that extensive alterations have been made in that first proposed, such as we trust will be agreeable to the feeling of bee-keepers generally.

One of the most noticeable changes is that in regard to the prizes for hives, which, instead of being all money, are now in most cases only partly so, with the addition of a series of medals, which will be of equal value, and, it is hoped, will be appreciated as commemorative of the event.

There may be some things in the Schedule which will not please every one; there are some that we are not *quite* pleased with, but having thoroughly discussed every feature and bearing of each particular case, we have, as we hope every other bee-keeper in the kingdom will do, submitted to the opinion of the majority, with a full determination to do our utmost to make the Show a great success. There is little doubt but that the work of the Committee will be scrutinised and criticised most closely; but we hope that nothing will appear, either in this or any other Journal, which will savour of unfriendliness, for the great object which we all have in view is the promotion of our mutual hobby,—bee-culture.

We are peculiarly gratified with an original suggestion by the Hon. and Rev. Henry Bligh, and we have little doubt but that his idea will be generally acceptable.

Apart from fancy bee-keeping, he is anxious, as the Schedule will show, to bring before the public not only the supers, &c., which have been filled, but also the very hives, or facsimiles of them, upon which they have been raised. We do not think the Show will contain a more interesting exhibition than this will prove to be. His offer of five pounds to form a first prize in the class has been most agreeably followed by E. Melladew, Esq., who has given a similar amount to form second and third prizes.

As will be seen, the proposal to form a Honey Fair has been considered, but it is felt to be impolitic to destroy the effect of the Show during the three days of its existence by the sale of the *honey exhibited*. This, we feel, is an error, as many exhibits will remain unsold until the end of the third day, and then their chance of sale will be but meagre. The prizes offered amount in value to nearly a hundred pounds, but the amount given and promised reaches only 60*l.* 15*s.* 6*d.*; and as last year we relied upon the liberality and good sense of the friends of apicultural progress to enable us to carry out the good work begun, so now we appeal to the friends of the Cottage class to help forward the present object. The amount of good that has already been achieved is incalculable, and a second exhibition as well supported as, and let us hope more extended than, the first, will render bee-keeping *the rage*.

The manipulating-room we look upon as a most important feature in the programme proposed, and trust this year it will be greatly extended and improved. We want to see it so arranged, that Members of the Association can have free entry on each of the three days,—a portion of the space being set off for their benefit.

JUNE.

The past month of May has been a 'merry' one, indeed, amongst bee-keepers, fine weather predominating during almost the whole of the period. There was the usual break and spell of cold about the middle of it; but although the change led to the slaying of drones, and the delaying of swarms, there was nothing serious in it; and a little timely aid to new swarms to keep up their comb-building fever, and a sprinkling of syrup amongst the combs of over-breeding stocks, kept all in good order.

The middle of May is remarkable for its sudden change of weather. Twenty-five years ago Charles Dickens, writing of 'Greenwich

Weather Wisdom,' says, 'In the middle of May there are generally some days of cold so severe as to be unexplainable: Humboldt mentions this fact in his *Cosmos;* and various authors have tried to account for it, at present in vain. The favourite notion, perhaps, is that which attributes this period of cold to the loosening of the icebergs of the North.'

Be this as it may, the cold was not this year so severe or protracted as can vividly be remembered of late years, and that bees were enabled to take advantage of all the spring fruit blossoms, many nearly filled supers will now bear witness.

Swarming.—Swarming commenced with us on the 5th ult., but the bees returned, having lost their queen, she having fallen to the ground, where *we* found her, although the bees could not, notwithstanding Mr. Hunter's assurance to the contrary. *

They came out again on the 9th with a like result, but this time we were earlier on the scene, and having found her lost majesty put her in the hive intended for her, and placed it on the stand of the swarming stock. She still tried to be disagreeable and leave, and was a third time lost; and the bees, not discovering her, sought and found their own hive, and clustered under its stand. Another remove now became necessary, and the swarming stock was carried to a considerable distance, while the bees were hived again *with* their queen in their midst, but still upon their old stand, where they now remain. Our first two swarms came out of wooden hives measuring 17 × 12 × 11, the same size as the New Frame-bar Hive we described last year, and were secured on the 9th and 10th of May.

We regret to hear that in many places the winter has been so trying to bees, and in others that the spring has caused their dissolution, but have generally found the cause to be that in autumn, feeding had not been begun sufficiently early to induce the breeding of a batch of young bees before winter set in.

Supering.—Those who have not put on their supers should do so at once if their stocks are full of comb and bees. If not, supering will be a hindrance rather than otherwise as the cavity given will permit the loss of the necessary heat from the stock hive. If bees congregate in supers without working, they should be mistrusted, as they evidently intend to swarm, and are simply idling until the signal is given. This kind of freak is commonest in colonies which have too much honey in the stock-hive, and consequently cannot breed bees fast enough to allow a swarm to accumulate. In such cases the best course is, if in straw skeps, to shave off the seals of the honey-cells, cutting rather deeply into them, so as to cause a surfeit of sweets in the hive, which the bees must lick up, and deposit somewhere; and probably this treatment will drive them to *work* in the supers. If in bar-frame hives, the full frames should be unsealed and put into the extractor; and when relieved of their honey placed back in the brood-nest, or if drone-comb reserved for 'slinging' purposes only, as will be hereafter explained. Nothing will better tempt bees to work in supers than the presence of some nice pieces of clean white comb. It does not matter how loosely they are put into the hive or how suspended, it is only necessary to place them right way upwards, and so that they will not fall, and the more gingerly they hang the more eagerly will the bees set to work to fix and render them secure. There are so many '*best*' supers now before the public that it is difficult for them to choose, and we therefore venture to suggest that sectional supers will be found most convenient; and those, we are pleased to find, can be obtained of Messrs. Neighbour and Sons at reasonable prices.

Extracting.—Those who intend procuring honey by the aid of the Extractor should adopt the principle suggested by the Americans, and carried out so successfully last year by our esteemed friend, R. Symington, Esq. of Market Harborough, whose able pen is, we regret to find, now rusting ingloriously. His immense exhibit of honey at the great Show from one stock of bees was obtained in the following way: Having selected the stock which was most convenient for slinging, he quietly removed the quilt, or crown-board, as the case may have been, and placed a bottomless body box of similar size on the top of it, making it in fact a two-storied hive. He then proceeded to a third hive of similar calibre, and removing all the combs, placed them *seriatim* in the Extractor, and took out all the honey, then placing them in the upper story of the selected hive he left them to the care of the bees therein. The stock from which the full frames were taken was then treated as a natural swarm, a set of empty frames being given to enable them to make a new start in life. Doubling a hive, as shown above, secures an immense population of young bees through the double quantity of brood, and at the same time furnishes ample storage space as the brood hatches out, which the bees are by no means slow to take advantage of. Soon after storifying, it is good policy to sling the honey from every comb in the hive, and then select a set of all-worker

* On page 114—*A Manual of Bee-keeping*, by John Hunter—writing of the queen and swarm, he says, 'Often when full of eggs she is so heavy that a long flight is impossible to her, and she falls to the ground, where the bees will be sure to find her.' This statement will be scouted by the merest novice.—Ed.

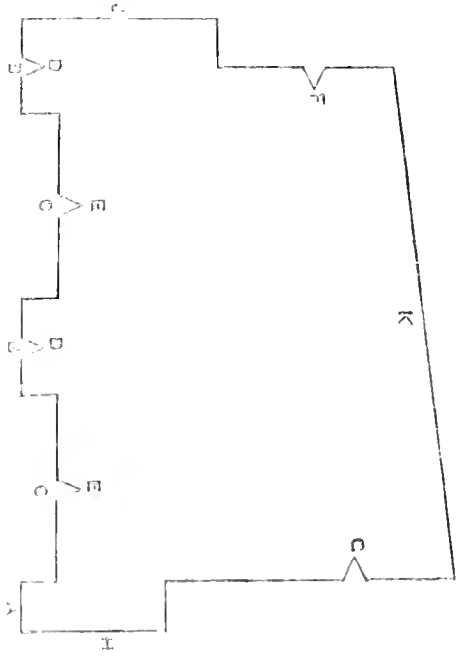
combs to furnish the breeding apartment, so that no useless drones shall be produced. This course will bring all the frames containing drone-cells into the upper story, and as they are most useful as honey-pots they will be most happily appropriated. A hive so furnished and established, with a prolific queen to keep up the population, ought to produce at least two hundred pounds of honey during an average season.

The pith of bee-keeping is in the having vast surplus populations when the honey is abundant, and the harvest wants storing. No one can over-estimate the value of the Extractor as an aid to apiculture; without it many of our stocks would have been useless during the whole season, but thanks to it we have relieved them of their surplus, and rendered thousands of additional cells available for brood-rearing.

While on the subject of extractors, we are glad to be able to notice a cheap, and, we have little doubt, a serviceable instrument by the inventor of the Sherrington hive. It is intended for use with one comb only at a time, which, in our opinion, is a step in the right direction. It has also another improvement: the comb is enclosed, so that there is no perceptible cooling of the comb or brood during the slinging. It is evidently made for those who study economy, and to them its price will recommend it. Full particulars may be obtained of Mr. James King, of Stoke Goldington, Newport Pagnell, the manufacturer of the Sherrington frame bar hive.

GAUGE FOR GUIDES AND FRAMES.

In the April No. of *Journal*, p. 198, in giving directions respecting the guides for the frames in moveable comb-hives, we laid down a hard and fast rule which, although necessary to success, is not easy to carry out, because of the difficulty which amateurs find in measuring the fractional parts of an inch. We say, 'What is peremptorily required is, that the centres of the guides (in the frames) shall be not more than 1½ inches apart, and not less than 1 inch 9-20ths, and that they shall be perfectly parallel to each other.' Now as this is a rule that must be observed if straight worker-combs are expected, we have, with a view to assist our amateur friends, prepared a gauge which we think will enable them to overcome all the difficulties which stand in the way of its fulfilment. The Woodbury hive is 14½ ins. wide, and contains 10 frames, the centres of which are, or should be, 1 inch 9-20ths from each other,—and by the aid of the gauge their exact positions may be easily determined. The block A is ¼ of an inch wide, and shows the space that should be left between the side of the hive and the outside frame; B B, each ½-inch wide, show the spaces that should be left between the frames in the body of the hive; and C C, being each 19-20ths of an inch wide, show the spaces that each frame should occupy. From D to D, or from E to E, are exactly 1 inch 9-20ths, and afford a means for marking on the hive the distances the centres of the bars should be from



each other; F is a gauge for striking irregular wax from bars when the guides are painted on them, leaving only a central line; G is for similar use with the 2-inch super bar; H is a ¾-inch measure; J is an inch measure; from J to K is 19-20ths of an inch; from H to K is 1½ inches; and K is a scraper.

If approved, we propose to get this gauge made of steel plate so that every one may obtain an infallible rule for the fixing of guides and frames, and a useful scraper into the bargain.

QUEEN-CAGES.

By favour of J. S. Wood, Esq., of Denmark, we have been enabled to present to our readers the accompanying illustrations of the Danish queen-cages mentioned p. 206 of last volume. Fig. 1 is a queen-cage sent for use in bar-frame hives, being exactly similar in principle to the Carr, the Renfrewshire, and the Raynor queen-cages. To our mind it has one grave defect, it is one inch in thickness at the bottom, so that it would cause considerable displacement of the combs both on introduction and withdrawal. Each one is furnished with a small bone cup to contain a honey supply for the queen should she be neglected by her new subjects.

The second illustrated is for use with a skep, but may be used for any hive with large central hole; it is three inches in diameter, and has a shifting bottom board of wood, which, by

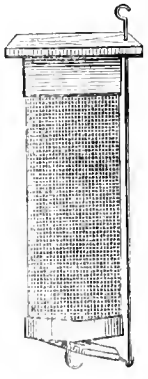


Fig. 1.

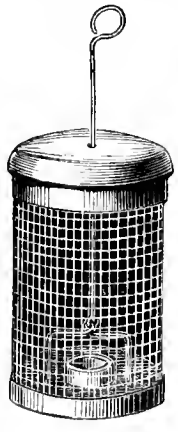


Fig. 2.

pressure on the wire above, is forced down into the hive and sets the queen at liberty.

No. 3 represents a cage in which a queen may be kept with a few workers for any purpose; it is simply a place of confinement, but may be used for various purposes.

Engraving No. 4 illustrates a cage of our own adapting to pass down between the combs in any hive having an opening at the top. It

Fig. 3.

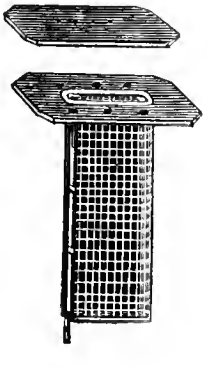
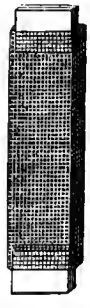


Fig. 4.

is a modification of a method employed for introducing queens to skeps several years since, combined with the admirable principle set forth by the Rev. Geo. Raynor, of caging the deposed queen prior to the introduction of the alien.

It is made of fine wire, and has a flange on the top which rests on a plate of vulcanite, through which the cage passes down into the hive. As will be seen, this first plate is pierced with some largish holes, which should be close round the flange and within the central hole in the crown of the hive. Attached to the upper side of the first plate is a second, which has pin holes corresponding with the larger ones in the under plate, and has also two or three which come directly over the open queen-cage. The object of these perforations is to enable the queen and her aliens surrounding to partake of scented syrup during her confinement, from a bottle placed on the top of the vulcanite when in position. As will be perceived, a wire runs down one side of the cage, and its withdrawal is the means by which the queen is set at liberty.

Notwithstanding all that has been written on queen-introduction, the British bee-keeping world are deeply indebted to the 'Renfrewshire Beekeeper' and the Rev. George Raynor, for their persistent adhesion to the fact that bees will feed alien queens, at a time when, if they could get at them, they would slay them. 'Such a divinity doth hedge' a *queen*, that although at first most obnoxious to the 'people' upon whom she has been imposed, they speedily soften towards her; and, seeing the strait in which she is placed, and being unable to withstand her solicitations for food, they bring her of the choicest; and having fed her, they continue their solicitude until she is released or dies of long confinement or disease. Without further preamble, we would direct attention to a queen-cage of the simplest possible construction, by the aid of which we in a few days introduced forty-four queens to straw skeps without a single casualty. The cage is of exactly the pattern of the first we ever saw (in 1863), which was a straight, flat tube of wirework, with a cork in each end, said to be an importation from America, but so strongly was 'our Mentor' impressed with the idea that the bees would not feed an alien queen, that it was never used for the purpose intended, but preference was given to the Woodbury pipe-cover, by which the queen is caged upon some open honey-cells to ensure her a supply of food during her imprisonment. The cage in question is very simply made; we take a strip of wood, of any length, 1 inch wide, and 3-8ths thick; cut some pieces of fine wirework, or, if not objected to, perforated zinc, about 4 inches long, and 3 inches wide; fold them round the strip of wood, making the lap come at one corner, where a tie should be made with fine binding wire. The cage is now made, and only requires plugs for its two open ends, which are cut from the end of the strip of wood upon which it was moulded, each being about three-quarters of an inch in length.



In introducing Ligurian queens by this cage the black queens are first removed by any of the usual methods; the bees are then freely sprinkled with thin syrup, scented with peppermint, the queen is put alone into the cage, and the cage is thrust into the hive between two

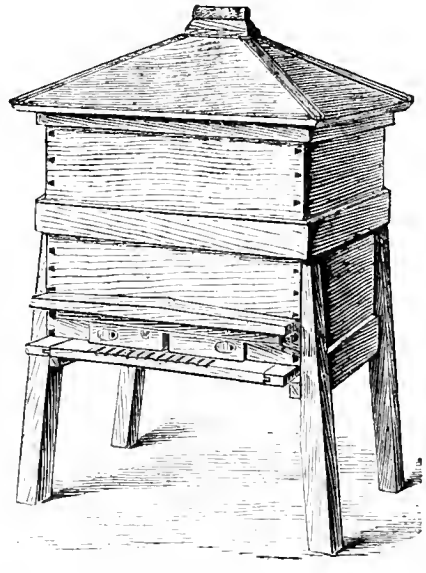
central combs. Two days after, at evening, the hive is opened, and the bees and *queen* freely sprinkled with the scented syrup; a plug from one end of the cage is then withdrawn, and her majesty allowed to crawl out on to the combs among her future subjects. In introducing to straw skeps, we always turn the hive topsy-turvy; and after driving and removing the black queen, place the cage and Ligurian at once between the combs, and, as before stated, release her majesty on the evening of the second day. This method has been safely pursued in forty-four instances without a failure; and we think we may say that it is certain of success. We will not, however, be responsible for any attempts to *improve* upon it.

REPAIRING DAMAGED COMBS IN SKEPS.

At this season when driving is so much practised in the making of artificial swarms and the extraction of queens, it often occurs, through the heat of the weather and the tenderness of the combs, that the jarring caused by drumming the hive loosens the combs from the hive's sides and causes them to lean against each other; and often when the hive is being returned to its original position, one or more of them will fall in a heap on to the floor-board. Similar results often ensue from the effects of a journey, when the jolting (even though they be inverted) will cause the whole set of combs to incline to one side, where they will lie on each other like the leaves in an open book; and any attempt to set the hive in its place will cause the whole to fall in a heap, crushing brood, bees, honey, and comb into a kind of bee-pudding, far from pleasant to contemplate. This kind of accident is of common occurrence, but the catastrophe may be averted by a little care and patience, and very little trouble; as we have found in several instances after bringing over forty stocks in skeps near a hundred miles by railway, and fourteen over London stones and rough macadam roadway. In all cases where the combs were damaged—and in some they were completely broken—we just made no fuss at all, but having cut a number of wine-corks into lengths of from half to three-quarter of an inch, we raised each comb into its place in its inverted position and placed a series of corks at the back of it, so as to prevent its leaning again, until the whole were in position, with a series of corks in each interstice, when, allowing a few minutes to the busy bees to return to their hive, we quietly tied the cheese-cloth over them again as when they were travelling, and left them under the shade of a gooseberry-bush for about twenty-four hours *to do their own repairs*, when the hive was restored to its correct position on its appointed stand. Since then if a comb becomes loose through violence in driving we have propped it into its place by the aid of short corks, and put on its floor-board, leaving it inverted until next day; and in all such difficulties we would earnestly recommend our friends to do likewise.

THE CHESHIRE HIVE.

By the kind favour of Mr. Cheshire, we are enabled to place before our readers an illustration of the hive bearing his name. In *The Country* for Feb. 25 last it is fully described as 'The Cheshire Crystal Palace Prize Hive,'



but inasmuch as it has been altered and greatly improved since the Palace Show, we prefer to give it publicity under the above title. Being in the hands of Mr. Lee, of Bagshot, it may be safely depended on as first-class in regard to workmanship, and no one can deny that it is a pretty and ornamental hive. It is (or was) similar in construction to the original Cottage Woodbury, having double walls all round with dead air between; but instead of ten it has eleven frames, and a division-board, which latter has to do duty as a dummy spacemaker. Instead of the old abominable notched rabbets, it has runners of zinc on which the frames rest, and which are kept at their correct distance from each other by pins driven into their sides, close to their ends. The frames are of the Woodbury size and pattern, and are, as in the old Woodbury, sunk a quarter of an inch into the hive, leaving what we consider an objectionable space between the frames and the crown-board, but which in the Prize Palace Hive was filled up with a piece of carpet. The entrance of the hive is guarded by an overhanging board about three inches wide, which effectually prevents

injury to the bees from driving rains; and the alighting-board at the entrance has grooves cut in it to drain away moisture and preserve a dry footway for the bees. The legs are splayed to give it greater base and prevent its being blown over by the wind, and between them are fixed runners, upon which the floor-board may be slidden in or out when required—the latter, however, is not reversible. An arrangement is provided by which the entrance of the hive may be contracted to almost any degree of narrowness, and, if necessary, closed altogether, so that in the event of robbing the enemy may be kept entirely at bay. The upper half of the hive is hollow, being intended as a super-cover and roof; it is hinged and has a chain attached, which prevents it falling too far over, which, in our opinion, offers a hollow sail that, catching the wind, might endanger the security of the hive. It is, however, claimed to be convenient as affording a flat surface inside on which tools, &c., may be laid during manipulation. It has one grave, but easily remediable fault; it is unventilated, and liable to become during winter a reservoir for the condensation of the moist vapours arising from the hive. The brood-chamber of the hive is $14\frac{1}{2}$ inches from front to rear, $8\frac{3}{4}$ inches deep, and $16\frac{1}{2}$ inches from side to side, giving a capacity of 2100 inches nearly. This is an improvement on the Woodbury, but we cannot help thinking the hive would be better as a bee-domicile if there were fewer frames and they ran the other way, so that its length should be greater than its width. The philosophy of hive shape is, however, a subject which has not been sufficiently ventilated, and in the meantime we can only judge by results.

Remarkable Swarm of Bees.—On Friday last Mr. Wm. Smith, of the Ship, Plumstead Common, was favoured with a large swarm of bees alighting upon his left leg, and hived them without receiving a single sting. They are now all doing well.—*Standard of 19th May*, 1875.

I do not think it right to advocate a system of bee management which allows or encourages persons to be comfortable in their ignorance and laziness. We ought to make such as uncomfortable as possible, so that they will find no rest until they are up with the present knowledge of whatever they engage in; the majority of bee-keepers require instruction, and they can only get it practically and fully through the use of the moveable comb-hive.—E. Parmly, *New York*.

A warm, calm, and showery spring causeth many and early swarms. But sudden storms do hinder them.—Butler.

Seasons.—Seasons, situations, and the laws of nature, present influences which may be guarded against or assisted, but which cannot be completely controlled.

Correspondence.

*** *These columns are open to Subscribers, so that their queries, replies, correspondence, and experiences, may be* fully *and* faithfully *recorded; and for the discussion of all theories and systems in Bee-culture, and of the relative merits of all hives and appurtenances, that the truth regarding them may be ascertained. The Editor, therefore, must not be expected to coincide with all the views expressed by the various writers. All Correspondence is addressed to the Editor.*

ECHOES FROM GERMANY.

BY A COUNTRY DOCTOR.

The German *Bee Journal*, which has now entered on its thirty-first year, is the recognised organ of communication between some of the most advanced beekeepers of the day; and thinking that those of our fellow-apiarians who do not see it may like to know something of the questions discussed abroad, we purpose from time to time giving abstracts of papers which have appeared therein and appear to be of general interest. We begin with—

THE DIVISION AND SUBSEQUENT REUNION OF STOCKS.

BY HERR GRAVENHORST.

If we mentally survey the region of apiculture, we shall find, almost without exception, that everything that has become important and prominent has been originated by Dr. Dzierzon, or has received from him its first impulse; and that from his genius have streamed those rays which have poured light in every direction over that field which we both cultivate. Gladly have I been lighted and warmed by these rays; and, looking upon myself as a small individual of the great swarm of German and foreign bee-keepers, whose all-honoured head this great man is, have endeavoured further to develope the hints thrown out by him.

Some years ago Dr. Dzierzon wrote to me, 'You ought to be able easily to winter three or more queens, with small populations, in your straw-frame hive,* by dividing it into separate compartments by means of division boards, each compartment having a flight-hole: the flight-holes being placed in the front and at the back, at proper distances from one another.' I greeted this fortunate hint with joy, seized it with energy, and immediately carried it out, although in a somewhat modified form. The result exceeded my expectations. I did not, however, confine myself to this, for one idea kindled another; and the plan of wintering several reserve queens in my frame-hive, which has now been proved through several years, led me to that mode of division now under consideration, by means of which labour may be spared and the produce of bee-keeping increased.

This proceeding consists in dividing a population into two or three smaller ones, independent of one another, although occupying the same hive. This independence continues a certain time, according to the views and aims of the bee-keeper, and terminates in the subsequent reunion of the isolated populations into one larger population.

A simple preparation of a hive, which contains space for about sixteen frames, renders this division and reunion easily practicable. Let such a hive have three flight-holes in front, one near the right gable about 15 cm. from the end and 8 cm. from the bottom; a second, smaller, at the same distance from the left gable and the

* See Mr. Kirsten's notice of this hive in the May number of *British Bee Journal*.

same height from the bottom; and a third, also smaller, at the top of the hive. As these flight-holes are all in front, the hive can take the position of any working one, which would not be the case if one or more were placed behind. Two division-boards introduced into such a hive divide it into three compartments, according to the flight-holes. The compartments are generally so arranged that the two end ones contain each five frames, and the central one four, though under certain circumstances these dimensions vary. The division-boards must reach to the floor-board, and there be nailed with felt or selvage, so that the bees cannot pass underneath them. The spaces between the division-boards and the walls of the hive are filled up with moistened yarn, tightly pushed in with a knife and then plastered over with ordinary garden soil, made damp, so that all intercommunication between the chambers is cut off. Moistened garden soil is preferable to mortar for this purpose, as the latter sets too hard, and afterwards is not so easily removed. The reunion being determined upon, the communication between the compartments is renewed, the queens having been previously removed. This is effected by drawing out the threads, with which comes the dried earth, without taking out the frames. A few days afterwards the division-boards may be removed, and their places filled up by combs taken from the end of the hive, or which have been kept in reserve.

This plan of division into two or three populations may be practised with good results in various cases; as for instance, for the wintering of reserve queens, also with mother stocks* or those from which scions (artificial swarms) have been taken, with first swarms and scions which are about to swarm, and with populations which are intended for honey stocks.

The wintering in my frame-hive, proper precautions being taken for having strong stocks, and a plentiful supply of provisions, is always good, as generally happens in straw hives with dome-shaped roof. If in autumn a strong population is divided into two or three, to which queens are given, and placed together in a hive prepared as above directed, thus placed side by side, they maintain a proper temperature, and require no more or but little more warmth for a prosperous wintering than the large undivided population. To winter singly such small populations in separate stocks, is either impossible or costs too much from the proportionally large consumption of food.

In these populations which warm one another thus placed side by side, ovipositing takes place to a considerable extent early in the spring, so that, if at this time, or somewhat later, the reunion is resolved on, in each of the divisions two combs of brood are found, and thus the population when reduced to one contains six combs of brood, whereas had it remained undivided, it probably at this time would not have had more than four. After the subsequent reunion, such a stock at once gets an advantage over undivided ones, and turns this to the use of the beekeeper. Often indeed these threefold populations have waxed so strong, that one of them has been given to strengthen a stock that has wintered badly, whilst the other two after their junction under one queen have built up a strong population, which is ready quite early for artificial swarming.

For situations with very good spring pasturage such united twofold or better threefold populations are of especial value; and they carry on operations the more vigorously as they more easily get over and make amends for the great loss so frequently attendant upon spring gathering: they have developed themselves whilst other stocks at this good gathering time have still to do so. Whilst these are living from hand to mouth, those are collecting for their possessor, who further congratulates himself that his twin or threefold stock has already furnished him, by means of one or two queens, which he either sells or joins to populations that have become queenless, a harvest as it were beforehand, and repaid him for the trouble which its preparations caused him in the autumn.

There are two ways of proceeding in dividing a large population into two or three parts. One plan consists in dividing, late in the autumn, the combs and bees of a stock equally among the two or three compartments, giving to one the queen that is present, and introducing fresh queens under pipe-covers to the others. My pipe-covers have each an opening made in them of a size sufficient for a queen to pass through comfortably. I close this by means of a small piece of cotton cloth bound round it, through which the bees gnaw, but not too rapidly, thus setting the queen free after a few days. When the chambers are properly prepared, I bind the hive with a cloth, and in such a manner that the bees cannot pass under it from one to another. A few nails lightly driven through the cloth by the sides of the division-boards into the rim of the hive are sufficient for this. The flight-holes being closed, the hive is placed, cloth upwards, in a dark room. On the evening of the sixth or seventh day, so late that the bees will not take flight, it is brought out again and placed where required. On the following days, if the small populations are all right, very few bees fly away, even in fine weather.

The other way is by rendering the bees first insensible, and then dividing them and the combs equally among the compartments. The added queens can be covered up among the stupified bees.

Bees are best stupified by lighted slips of paper which have been drawn through a strong solution of saltpetre made with hot water, and subsequently dried before the fire. The hive is covered with a cloth, and placed in darkness, the same as the other.

When practicable, I take the bees and brood-combs from a declining stock, rather than from a good one, for wintering reserve queens. These I do not stupify, but put the combs with the bees straight into the compartments, and sweep the remaining bees in. Many of the bees will fly away, but those remaining will all be young bees, which are better for such a small stock than old ones. When, too, in the course of the summer, these twofold or threefold compartments have been used for queen-raising, which is much to be recommended, because they render special queen-raising stocks almost superfluous, they may equally be used for wintering, after being properly provided with population and provisions.

I believe that I have now shown the importance of a two or threefold division in reference to the wintering of reserve queens, also especially the plan of safely building up populations for taking a proper advantage of a good spring pasturage, and at the same time the great value of the straw frame-hive for carrying out the rational management suggested by Dzierzon. In this case little can be said about any sparing of labour, but in the following four cases, in which this plan of division may be used, this, with the possibility of increasing the honey harvest, will come prominently forward.

(To be continued.)

* We call those stocks mother-stocks which have given one or more swarms; also those from which scions have been made. The artificial swarm with the old queen, even if it contain more than half the brood combs, we call the scion.

THE GRAVENHORST HIVE.—EGYPTIAN BEES.

I sincerely trust that Mr. Kirsten will induce Herr Gravenhorst to send one of his 'Bogenstülpers' to our Exhibition, and that a thorough examination of it may be made before it is recommended to the British cottager. The controversy respecting the merits and demerits of this hive in Germany has waxed furious, some speaking of it as the *ne plus ultra*

of perfection, others condemning it absolutely. Those who would like to see an elaborate and stinging criticism upon it, may be referred to an article by Wehmeyer in the *Bienenzeitung* for March 15th, 1871. I am afraid, however, that there is a little animus running through this article; and the difficulties of moving the hive, when examination is necessary, to a new position, turning it up, removing the nails, dragging out the frames, and their reintroduction, with the necessary injury to the bees, are somewhat ludicrously exaggerated. He says that some that he saw with sixteen frames would require the strength of a Samson* to move, and that most of them required two men, and certainly when they are filled with honey and brood, it can be no child's play to carry about the sixteen-frame hive with which Herr Gravenhorst operates which must measure 2 feet in diameter.

Wehmeyer quotes also Von Berlepsch, who, when writing to Hopf, says, 'If Schönfeld in the *Bee Journal* says that the straw-frame hive has a great future, it only shows that Schönfeld is not so great a master in practice as in theory. This hive has no other future than the lumber-room.' In reference to cheapness he says the fourteen-frame hive is sent out at $3\frac{1}{2}$ thalers (a thaler = 2*s.* $10\frac{3}{4}$*d.*). I am of an opinion, however, that no very good hive can be very cheap; but for a few shillings more I can build a double-walled hive, with good roof, giving protection and room for supering, floor-board, and frames that have no nail or distance-guide of any sort, but immoveable laterally and longitudinally when in position, and that certainly would wear out three or four straw hives.

Is not the 'South Lancashire Bee-keeper' mistaken in the colour of the Egyptian bees? Vogel, who received some imported by the Acclimatisation Society of Berlin, describes them as a constant variety that uses no propolis, cares nothing for tobacco-smoke, only stings when irritated, but then most abominably.

Workers.—First, two rings quite, the third, half reddish-yellow, with whitish hair, so that in flight they look as if covered with meal. Smaller and thinner than the native bees or the Italians; cell, $\frac{1}{10}$th smaller.

Drones.—First two rings reddish-yellow.

Queens.—First five rings reddish-yellow with shining black edges, as if marked with blood—very beautiful. The Baron von Berlepsch says that those he possessed were more beautiful than the Italians at their best appearance. I have read somewhere, but cannot at this movement give the exact references, that they are useless in an economical point of view. —A Country Doctor.

THE HONEY FAIR.

I have perused with interest the various articles that have appeared in the *Journal* relative to the sale of honey-comb in supers at the last Show, and the various suggestions to obtain a better market this year. I must say, that, contrary to the expressed opinion of our experienced Editor and others, I never expected the supers exhibited would meet with a ready sale for various reasons. Persons who could afford to invest 2*l.* or 3*l.* in the purchase of a luxury, would neither be troubled to personally carry away with them such a bulky article (even if they were present at the close of the Show), nor would they pay cost of carriage if promised to be sent, nor stand the risk of total destruction at the unmerciful hands of the railway servants. The Show started with a regulation that no exhibit should be removed until the close of the Show; but on the third day, finding that great disappointment was likely to ensue from an almost total absence of sales, permission was given for instant delivery of anything for which a customer could be found; the result was, a great many glasses of honey and a fair sprinkle of supers found customers. More would have changed hands had the owners been present to act as salesmen; but the multifarious duties of the Committee and officers did not permit them to be always running up and down the tables with customers. The suggestion that the Association should, at the next Show, cut out the honey-combs and sell them singly, or weigh up run honey to buyers, is utterly impracticable, not only on account of the labour which would thus be thrown on the Committee and officers, but the disappointment that would be experienced by many at the return of their supers with good looks irrevocably spoiled for the sake perhaps of selling half-a-dozen pounds of honey—the difficulty of safely packing and returning half-empty supers would be insurmountable. Large supers are a great mistake where the honey is intended for sale. The Americans are far wiser than we in this respect; they gather their super honey largely in small boxes, which find a ready sale intact. The *American Bee Journal* tells us that at the New York State Fair, 1874,—

'The main strife among competitors seemed to be mostly on box-honey, as to what style of box is best, all things taken into consideration, for marketing surplus honey at the present time is a question of dollars and cents with comb-honey raisers. The variety and styles of packages attracted much attention, and as there were competitors from different parts of the State, the display was not only attractive but practically instructive. Mr. Tennant's sample was in old style of boxes, and though of creditable appearance was not quite up to present requirements, the packages being too large to bring highest market prices; so with Mr. Griswold's sample—nice honey, but not in shape to call purchasers' attention. Mr. Bettsinger's, of Marcellas Falls, was in narrow sectional boxes, I believe the same as advertised and sold by himself and Mr. George T. Wheeler of Mexico, New York, and largely in use in that section, and known in New York as Syracuse style. As Mr. Bettsinger's were nicely cased they showed to the best advantage, and could but be very convenient for retailing purposes. Mr. Hadsall's sample hung in frames, similar in size to Mr. Bettsinger's boxes; but not as tastily put up, yet well arranged to show all the merits in that way of getting surplus. Mr. C. R. Isham's boxes were wood tops and bottoms of any desired size and of any kind of timber, some polished off in fancy style, some merely planed smooth with glass sides and ends, held to place by angular bright tin corner-pieces, pronged to pass through the wood and clinch, making as strong and nice a

* I adopt this reading. The text has Simson. Perhaps this is taking an unwarrantable liberty, as there may be some German athlete of this name, of whose muscular prowess we are ignorant.

box as could be desired by the most fastidious, and profitable to the seller, as they can be manufactured about as cheap as almost any style of glass box. Part of Mr. Isham's lot was in small single comb plate boxes, 6½ by 2½, and weighing about 2½ lbs. gross, the ends showing the pure liquid honey in cells built against the glass, while the sides gave a view of the white capped-comb in all its natural beauty and purity. The first premium was awarded to the honey in the glass boxes above mentioned, and exhibited by Mr. C. R. Isham.'

Now I think the above extract forms a lesson to English beekeepers, just that which they require, and it forms, in my idea, a perfect solution of the market difficulty. Let the honey-comb be produced in saleable form, and customers will be readily found. Many first-class London grocers are always ready to buy nice clean saleable comb at about 1*s.* 6*d.* per pound, they selling it retail at 2*s.* to 2*s.* 6*d.*; one such tradesman purchased before our show nearly 100 lbs. of clean capped comb, in Woodbury frames, at 1*s.* 6*d.* per pound, and afterwards applied for a further supply; but through an inability to procure the necessary information, his customers could not be supplied. The wealthy classes appreciate and fully comprehend the value of honey in the comb in contradistinction to run honey, although, perhaps, they are unable to say why the former always tastes so much nicer.

Few persons here are aware of the extent to which beekeeping is carried on in America, where the produce of an apiary is often stated in *tons*, for all of which customers are found, and the journals teem with advertisements from wholesale buyers of comb and run honey. All over the States bee-keeping is made a regular trade, numbering many skilful and successful men amongst the ranks. Probably the largest bee-keeper in the world is Mr. J. S. Harbison, of the county of San Diego, California, who is stated to have in that county 2000 stocks, which last year produced 150,000 lbs., or 67 tons of surplus honey of very excellent quality, which brought at market 30,000 dollars! Something like bee-keeping this! The *National Agriculturist* (American) says:—

'Mr. Harbison is the foremost bee-man in the world, so far as money-making from the business is concerned, and he undoubtedly occupies the same position as to the knowledge of the business, there not being in the world his equal in this respect; the labour in and about all his apiaries is now done by apprentices, who are availing themselves of the opportunity to learn the business, while their labour pays their personal expenses: eight young men are thus engaged, and some of them have become so expert as to be intrusted with the entire management of some of his apiaries. Other parties, since they have learned the success attending the bee business in San Diego county, have also removed a large number there, and good judges estimate the product of the apiaries of the county last year at 100,000 dols.'

A great deal of the American honey is sold in the comb, and the report of the Jefferson County Beekeepers' Association states the members had—

'Colonies in the spring, 1285; increase, 1150—total, 2435 put into winter-quarters. Produce, comb-honey, 28,467 lbs.; extracted, 15,032 lbs—total, 43,499 lbs. All the comb-honey was sold for a price ranging from 18 to 30 cents per pound, and the extracted from 12 to 18 cents per pound, except 250 lbs. of comb, and 400 lbs. of extracted honey on hand.'

It will thus be perceived that prices over the Atlantic range not far from our own, and however much honey is produced in England it will pay well, even if lower prices are submitted to. I feel sure beekeepers have only to know the most saleable form for honey-comb and self-interest will direct them how to obtain it. We have but to remember the true law of political economy, 'Create a market and it will be supplied.'—Apis Mellifica.

PERFORATED ZINC FOR ADAPTERS.

For some few years past I have been using with the greatest success perforated zinc instead of the old adapting-boards with slits, and only on one occasion did I ever know a queen to get through, and that I think was the smallest I ever saw,—although I have frequently caught queens and tried to force them through. I am now working several supers on the zinc, and the work of comb-building is progressing capitally, the bees finding no inconvenience in getting through the small aperture. I am still using the old Woodbury hive and with shallow supers the same size in width as the stock lot, but if the super be smaller than the stock hive, I always allow the zinc to cover the whole of the bottom of the super so as to give the bees as many holes as possible to pass through. Another good feature in the zinc is that it is, I believe, almost impossible for a bee to get through with a load of pollen. My attention was first called to this last year; I had placed a full-sized Woodbury full of empty combs as a nadir under the stock hive, merely placing a piece of zinc between the two, the entrance-hole being cut out of the stock hive, and a piece of zinc allowed to project as an alighting-board. A few days afterwards my attention was directed to a considerable quantity of pollen lying underneath; after watching some little time I observed several bees alight on the outside of the nadir and crawl through the holes of the alighting-board to reach the entrance: in crawling through the holes I noticed that each bee invariably dragged the pollen off its legs, which, as before stated, lay in a heap outside.

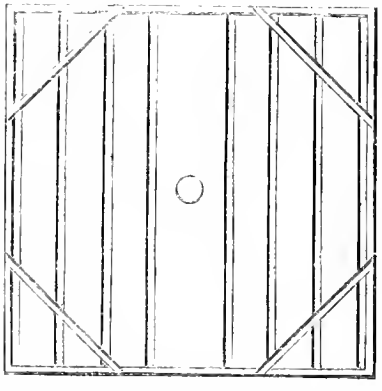
I enclose a small pattern of the zinc, and should be glad if any of your numerous readers would give it a trial, and shall be most happy to send any one a small piece for pattern on application to—O. Poole, *Uphill, Weston-super-Mare.*

NEW STEWARTON HIVE.

I enclose my yearly subscription to *Journal*, which I am glad to see so prosperous, and beg to congratulate you on your success. It is very interesting and instructive.

My bees (nine stocks) are generally strong and healthy, and lately have been working well. They are in straw, Woodbury, and Stewarton hives, all equally healthy. Instead of a *quilt* for Stewarton hives, I draw all the slides and put on a crown-board with a 3-inch hole in centre, covered with perforated zinc, which serves for ventilation and also for feeding by the 'bottle.' I have one of my own, which I think more easily made, of the Stewarton type, and in which the bees seem to do very well;

the form being adhered to, and the angles being filled with dead air, keeps them comfortable. I send you a sketch of it. Square box, 15½ inches; angles filled in, and perforated zinc put on under side of bars—bars can thus be of one length, also slides,



instead of various lengths, as in Stewarton. Centre piece width of two bars, fixed without slides for facility of feeding. Crown-boards for Stewartons on the same principle, minus the corners of zinc. Boxes 8 inches deep for storifying. Your opinion will oblige. My only claim is cheapness of construction for Stewarton principle. Glass window back and front, with shutter.—A. Anderson, *Dalkeith, May 5th*, 1875.

[This kind of hive possesses one great advantage in its being possible for its side-combs to be placed in the central part of the hive, even though they be not all interchangeable. If four sides of the hive are better for inside dead-air space, why not inclose air round the others? The 8-inch body-boxes are a great improvement on the 6-inch, which are too shallow.]

THE NEW FRAME-BAR HIVE.

I hope you will publish directions for making your 'new frame-bar hive.' The cost of carriage by rail and cartage prevents dwellers in remote places from buying such things ready made. If you would give directions for making all outside parts, and sell us the internal arrangements ready made and packed in a small space, it would suit us admirably. I should like some this season.—Leominster.

[We would much rather give ample directions, so that every one can make his own, and not be obliged to trust to a hive-maker, and be disappointed at the eleventh hour.]

THE IMPROVED COTTAGE WOODBURY.

I have received your pattern hive and am perfectly charmed with it; it is exactly the sort of hive I have been trying to invent for a long time. The feature which pleases me most is its easy *adaptability* to *any sized* frame; and I shall, in future, have all my 'Sibertswold' hives made after its fashion. Mr. Woodbury and I could never agree as to the proper width of the frames. He adopted the ⅞ size, whilst I followed Bevan, and made mine 1⅛ inch; but I have long determined to split the difference, and adopt 1 inch frames, with ⅛-inch spaces, and I find you are very near this in your Improved Woodbury.

Yesterday the weather was milder, with sun, and at midday two of my hives sent out a good issue of drone—the first time I have seen them; and really, at one time, there was every indication of a swarm, which I did not want and shall try to prevent. The drones appeared with the swallows, for I saw two yesterday, for the first time. If you quote any observation of mine, recollect, please, that I am, as of old—Sibelt-on-the-Wold, *April* 28, 1875.

SWARMING FROM SUPERS.

I am inclined to exercise my prerogative, as a subscriber to 'ours,' by asking for information on one point, as I am not quite certain how to act for the best, and shall abide by *your* decision. I have a stock of bees working in a large octagon super: they commenced in the super a few days ago, and, as they are strong, are likely to fill it. Say 80 lbs. nett! A Crystal Palace super, perhaps! but I 'must not reckon,' &c. Now, the point at issue is this:—If they should swarm whilst the super is, say, two-thirds full, you would (of course) return the swarm, but would you secure the queen or return her also?—Devon, *May 13th*, 1875.

[We would return the swarm and the queen also, but would, as a precaution, clip her wings, and so prevent her flying away. Should the bees be troubled with the swarming mania, they will probably issue several times under those circumstances, but the queen will always fall to the ground, and the bees perforce will return, and on each occasion the queen should also be found and put back into the hive.

If the queen were not restored with the swarm, young queens would be produced, and a swarm with a young princess at its head would shortly issue, and no one can be quite certain what course her royal highness would pursue. She might, in her lightheartedness, lead the swarm away altogether, and so spoil the prospect of a super; or, as has happened ere now in our experience, after the loss of the queen from the first swarm, several after-swarms may issue, and so impoverish the colony as to render the completion of the super impossible.]

NEW BEE-BOOKS.

In this month's *Bee Journal* 'Melissa' suggests 'that you should place in some more permanent form than that of a monthly journal your views and experience of bee-keeping;' or, in other words, that you should write us a book on bees.

There is no doubt your *Journal* is drawing attention to bee-keeping, and a work on bees and their dwellings, &c., well illustrated (for we all like pictures), would be heartily welcomed, and I have no doubt it would at once become '*the Bee-book*.' Will your engagements permit of your undertaking the task?

I think there is plenty of room for such a work: and whilst showing how hives ought to be made (including unicomb hives for experimental purposes), you must not forget to point out defects in existing hives.

Very interesting chapters might also be given on bee-furniture, as recently invented, and on bee-food and artificial pollen.

I trust if you have not already begun such a work that you will not allow the season to pass over with-

out doing so. You might also incorporate that poem on bees by Evans. Make the price such as will enable you to produce a work that we can *look* upon with pleasure. — INQUIRER, *Middlesborough, Yorkshire, May* 12, 1875.

[We are much obliged for our correspondent's suggestions, and shall doubtless some day revise and condense the teachings of the *Journal*, but we cannot be hurried in so important a matter. If our correspondent will allow us to suggest it, we are writing a book now, or, rather, we are providing materials for one, and our readers are getting the benefit of our work piece-meal. We should be glad to publish Evans's Poem, but cannot obtain it. —ED.]

ARTIFICIAL POLLEN.

In the May number of our *Journal* Mr. J. S. Wood, after recommending the flower of the crocus as the best mode of giving artificial pollen to bees, goes on to say that 'by using the crocus the bee-keeper can in a much more satisfactory way find out which flour the bees prefer, and that he has tried besides wheat and rye, sago, rice, and potato flour. The sago and potato flour they take in preference to the others.' In my opinion Mr. Wood is carrying his experiments too far, and at the expense of the poor bees, which is a pity. In using sago and potato flour Mr. Wood has overlooked the fact that those substances are nearly of the same chemical composition as honey and sugar. They may all be represented as consisting of charcoal or carbon and water. If the bees have not a supply of food for themselves we give them sugar dissolved to the consistency of honey; and in making them also carry sago and potato flour into the hive, we are really inflicting an injury on them, for they are only carrying sugar or honey in another form, as all starches are convertible into sugar by adding an atom or two more of water.

The spurious honey of commerce is simply starch which has undergone this process. True the bees may prefer sago and potato flour, starchy matter absorbs moisture fast, becomes more deliquescent, and may be easier packed in the baskets on their legs.

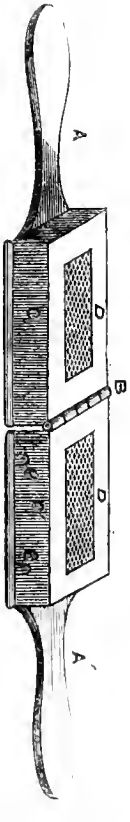
Bees are not infallible, and they certainly err in preferring amylaceous substances like sago and potato flour as food for their young to the rich nitrogenous flour of wheat and rye. The natural pollen of flowers is very rich in this nitrogenous matter, which is so indispensable to the nourishment and development of their brood. It has been proved over and over again that bees cannot raise brood without it. If pollen is entirely withheld, even although there is plenty of honey in a hive, the larvæ will die in twenty-four hours.

There is a shop in the neighbourhood of Cavendish Square, W., that sells the gluten of wheat under the name of 'Infant Food,' and it is recommended by the *Lancet* and other medical papers to the mothers of the United Kingdom as the best for infants. It contains a large amount of nitrogen; and if it could be procured in fine powder, I believe it would be the '*best food*' for our favourites' nursery also. In supplying a substitute we ought always to try and imitate the natural as close as possible; and I would suggest that the British Bee Keepers' Association take up this matter, get an analysis of the natural pollen of flowers, and endeavour to find out the best substitute. It would be advancing bee-keeping materially, now that such a simple and effective vehicle of communication has been discovered. All bee-keepers should make their arrangements for growing crocuses largely next spring. They are easily cultivated and within the reach of all, and besides their own natural beauty they have now an intrinsic value to bee-keepers.

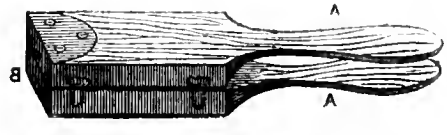
Another still earlier flower which will answer the same purpose is the winter aconite (*Eranthis hiemalis*), and which will grow anywhere. J. S.

IMPRESSING WAX-SHEETS.

I have been very successful with the plates I had from you, and can make the wax-sheets and impress them with very little trouble and very quickly. I have two or three pieces of glass the required width and about 8 inches long; and as soon as the wax is stripped off I at once place it between the plates, and with one squeeze the operation is completed, and when removed, the plates are ready for the next. I have *endeavoured* to sketch my apparatus, which I made myself, and which may be easily manufactured by any one. Having had the pleasure of removing all our pew-doors, I made use of one of the hinges for the press, and it is just the thing, as it is strong and almost entirely free from lateral motion. I found the india-rubber cushion and brass eyes necessary, as when the plates at B touched, they would not meet at the further end. I do not make my wax-sheets quite so thick as those you showed me, and they take the impression easier, and are more nearly of the thickness that the bees require.—A. C. *Market Drayton.*



A A′, lever handles; B, hinge; CC′, blocks on which DD′, metal plates, are fixed. C is screwed to A, but C′ must be attached by E E′, brass mirror plates, having the screw-hole at E′ filed so that C′ may play up and down, a little under C′ towards A′ is an india-rubber cushion, a small piece of india-rubber tube.

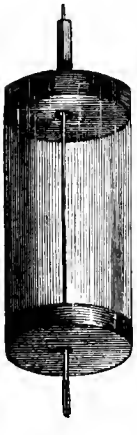


EMBOSSED WAX-SHEETS.

For the benefit of the novice it may be necessary to state the necessity for removing by rounding off the lower corners of each sheet to prevent twisting, before attaching to the frame or bar, more particularly when the full depth is employed as recommended by your esteemed contributor 'A Lanarkshire Bee-Keeper' in last month's number.—A RENFREWSHIRE BEE-KEEPER.

IMPROVING THE FRAME.—A NEW FEEDER.

I do not object to have my letter published. I think any discussion that may arise through any subject should be published through your columns, although I think the name of correspondent should be withheld. Yet as some signature is desirable, put the initial, 'P. Warwick,' to this or any other communication I may send, and I shall be satisfied. With regard to a central moveable bar in the frames you must remember I recommend it for your Cottage hives. We must presume for a very long while there will be two classes of bee-keepers; and I think it might prove a recommendation to those who have not as yet adopted the frame-hive. Such persons are not likely to have extractors, and certainly it must be an advantage to have a hive half full of comb to put the swarm in rather than one empty. You are quite right about the different schemes for hiving swarms; and I daresay there are as many schemes about feeding, but, however, I will venture to give you a sketch of my plan. Perhaps you may laugh at it, and may justly say I have pirated another man's invention though for another purpose; and it certainly is so to some extent, but I find it a useful article and forward you a sketch. I happened to have some short tubes of thick glass about three inches long, in one end I put a cork, and through the cork a very small metal tube about two inches long, and through the tube a needle made of wire; the thickness of the syrup and the size of the wire regulate the supply. I draw out one of the deal slides between the frames and cutting it in two about the middle, replace it, leaving a small space between the cut ends sufficient for the small tube and needle to pass through; the needle may be any length, and the syrup trickles down it to any part where the bees may be, the needle requires moving occasionally as the sugar might candy on it and stop supply.—P., *Warwick.*

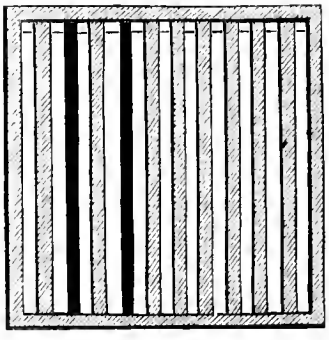


DIVIDING AND MULTIPLYING.

As, like Norval's father, 'my constant care is to increase my store' (of bees), I should like to divide my strongest stock into two. They seem very strong, as in a fortnight they have filled four frames with comb and brood in all stages. The skep only furnished enough to fill six; and after a week I took two, and added to my weak stock. They have now eight frames full, and the two outer ones partly, but have not worked on them for a week since being in glass hives. Is it too soon to take the queen, and, query how many frames? as an artificial swarm?—F. L., *Clapham.*

[It will not be wise to divide the swarm until a fair quantity of young bees have hatched out of the cells. The bees at present in the hive are all comparatively old bees, whose vitality is impaired by the great effort demanded during the past fortnight in comb-building. If divided now the same bees will be called upon to continue that effort under dispiriting circumstances, and it will not be very surprising if they disappoint you.

When you divide, take two combs of brood, with bees and queen attached, and place them (as Nos. 2 and 4 in the engraving) in a new hive on the stand lately occupied by the old stock. The flying bees will quickly form the



swarm, and these, with the bees hatching from the combs, will build combs Nos. 1 and 3, perfectly straight, between the full frames Nos. 2 and 4; and they will also commence to build on No. 5, which should be at once removed to the side of the hive to the place occupied by No. 1, which, with the whole of the others, should be pushed towards the other side to make room for it. This will ensure No. 5 straight comb, and if an empty frame be placed in the centre of the bunch of combs, No. 6 will be thus built straight also, while No. 7 outside the original No. 4 will be begun; and so gradually the whole will be completed, every comb being built between two others, and necessarily straight. It must, however, be borne in mind that this *work* cannot go on rapidly without plenty of bees and food; and, therefore, a little patience and care, until young bees hatch out, is highly recommended.—Ed.]

OLD-FASHIONED BEE-KEEPING.

There seems now to be much trouble made, expense, and, perhaps, little more profit (except not killing the bees) than from the system followed forty-five years ago, when a vagrant swarm was captured by us on a lime-tree overhanging our garden. Bell, book, and white sheet were in requisition. Next year we had five hives. The following year we smothered ten hives, and stored *enormous* crocks of honey, and made a large cake of wax. Following year the same, and with the united stores of honey made a hogshead of that admirable wine, '*Mead*,' besides supplying all our friends with honeycomb. Our old gardener in winter put a wrap of long straw on the hives, and occasionally threw a dead crow or accidentally-killed chicken to the bees, and (rarely) gave a little beer and sugar. I have seen twenty or thirty stocks in the same way in Belgium, and very few misfortunes.—M. A. H., *St. James's Square, Notting Hill, May 5.*

[We wish our correspondent would tell us what the bees did with the feathered food (?) administered to them. Fancy obtaining all this grand success by smothering in autumn double the number of stocks one starts with in spring! What *would* it have been if one more year's delay had been granted, and an extra chicken or crow thrown in?—Ed.]

BEES BUILDING HORIZONTALLY.

What is the cause of bees building comb in a horizontal position? I had a nice swarm on the 9th of June, 1874, and which was put into a common straw hive, and placed on a table near the settling place. At about 4 p.m. the bees suddenly left the hive, and were traced till they

alighted and entered a hive at the farther end of this village, some three hundred yards distant, the occupants of which had died in the preceding winter. Late in the evening this hive and its tenants were removed to my garden, to the block originally intended for them, and all appeared to progress satisfactorily.

In due time, to prevent swarming, a straw eke, 12 in. diameter and 6 in. high, was put between the hive and its block; a board with six holes in it, each 1½ in. in diameter, was fixed between hive and eke; entrance to the hive provided by cutting an outlet in the lower rim of the eke, 1½ in. long and ½ in. in depth. In September this eke was removed, and only one piece of comb (no honey) found in it; the position of which was horizontal, several passages for the bees had been left between the edges of it, and the sides of the eke. The hive has remained on its block all the winter, and at the present time the colony appears to be numerous and busy at work. Can you say if horizontal building is common? to me it appears unnatural, and if so there certainly must be a cause. None of the bee-keepers in this neighbourhood that I have spoken to ever saw anything like it.—Worcestershire.

[Finding the comb in a horizontal position by no means proves that it was built so; the probability is that it became detached from the top of the nadir and fell down. Upon what does the comb rest?—pillars, as in the case of wasps? or is it supposed to support itself by the attachments at its edges to which you allude? If you look at the under side of the comb, you will probably find that the cells have been gnawed away to enable the bees to pass under it, whereas if built horizontally every cell would be of one length and perfect.—Ed.]

So far as I could see, the comb was supported by the attachment at its edges,—no pillars of any kind were found on removing the eke. The comb did not rest on the floor-board, therefore it was unnecessary for the bees to gnaw away the cells in order to obtain a passage. The cells on both sides appear to be of one length, and when removed were perfect.—Worcestershire.

CORRECTIONS.

I wish to correct two mistakes in my article in April No. of the *British Bee Journal*, first, the thickness of stuff for surplus frames (⅜) three-eighths instead of (⅞) seven-eighths, as it is printed; and, second, the latitude is 42° north, instead of 24°, which makes quite a difference.—R. R. Murphy, *Fulton, Ill, U. S. A., May* 11, 1875.

Foreign Intelligence.

ITALY.

Owing to a protracted winter, apiculture generally is rather late all over the country; but now that decidedly fine weather has set in, there is every hope of a favourable season.

The *Apicoltore*, which is the organ of the Italian Central Association, has now begun the publication of De Berlepsch's work, in the Italian language.

The rooms of the Association are open daily to the public from 12 a.m. to 1 p.m., on Saturdays from 1 p.m. to 3 p.m.

FRANCE.

The Société d'Apiculture de la Gironde-Bordeaux will meet on the third Friday of each month for the present year.

ECHOES FROM THE HIVES.

Liff, by Dundee.—'I am glad to be able to congratulate you on the issue of your valuable paper. I have, as a bee-fancier, after years of close study, to say that I have the fullest confidence in your system; and, though much of my experience has been dearly bought, I agree with you in almost all your deductions. I shall probably trouble you occasionally with a few notes, as, in common with most bee-keepers, I have had a few things occurring which might benefit others to know.'—W. R.

Whittingham Hall, Fressingfield.—'I have fitted small press to the guide-plates you sent me, and made sufficient wax-sheets to last me, I think, this season; therefore am about to try and dispose of the same in "Our Want and Sale Column." I think the impressed wax-sheet capital, in supers, for the bees to commence upon; they take to them very kindly, whether fixed at top or bottom.'—T. F. C.

Eccleshall, May 29.—'Let me, by the way, tell you that, *if you wanted it*, I could have borne testimony, from facts in my apiary this winter, to the great advantage of the use of quilts. The late *very trying* winter to bees, in the aspect in which it has presented itself to us here in Staffordshire, has been peculiarly adapted to a fair trial of quilting or non-quilting arrangements. An old bee-keeper, within a stone's throw of my garden, has lost four out of five of his stock this winter, and another has met with the same measure of "luck" in this same parish, while I have not lost one, but have them all in vigorous working order. As usual, these *old bee-keepers* (a misnomer for bee-destroyers of the old type) "cannot account for the reason."'—Deborah, *A Voice from Staffordshire.*

Westerton, Kent, May 11.—'I had a splendid swarm yesterday, and another to-day, the earliest in this neighbourhood. Please record the same in the *Journal*.'—W. Scragg.

Brentford.—'My bees swarmed yesterday, 9th May, and were put into a Woodbury, which was half filled with them.'—Robt. Emmerson, jun.

Upwell Island, May 8.—'Enclosed is my subscription to *Journal*. I like the number sent. I have learnt a lesson or two that my near thirty years' experience had not taught me.'—H. T.

Liverpool, May 21.—'Five out of the nine frames are filled with comb. I used the cane-guides that were recommended in the *Journal*, and the combs seem to be quite straight.'—A. G. B.

Glasgow, May 22.—'Stocks are looking well here, but weather very bad the last two or three days.'

Kirkby, Liverpool.—'I feel desirous to hear how your contributor, Mr. Geo. Walker (p. 132, vol. ii.), now feels under the infliction of a bee-sting; whether the inoculation therein described is permanent, it being a subject in which all practical bee-keepers are interested. Perhaps Mr. Walker will favour us with his latest experiences.'

Oakbraes, Godalming, May 24.—'By following your directions in managing my bees, I have been very successful. All my hives have swarmed some time since, and to-day I have had two second swarms, which, as they came out almost simultaneously, I had no difficulty in uniting.'

'During a visit to Shropshire last week I had the pleasure of seeing several swarms, one of which I brought home, which issued on the 13th of May from a straw hive belonging to my friend Mr. Evans, of Stanton-Long. He had another on the 14th, as also had several of the villagers, one of which took possession of a chimney; and we heard of a swarm that came on the 12th inst. at Monk Opton. My friends thought them very early, and they are fully three weeks before mine.'—A Saddleworth Bee-keeper.

Queries and Replies.

Query No. 123.—Would it be advisable to transfer a swarm from a straw hive to a Cottage Woodbury within a week after swarming?—H. G. M.

Reply to Query, No. 123.—If a swarm has been in a skep for a week, it would be very bad policy to interfere with it, as its week's work would be almost thrown away, and the bees would have to commence work again under most dispiriting circumstances. We say the week's work would be wasted, because the combs built would be so tender and soft that it would be next to impossible to fix them into bar-frames, so both comb and brood would be lost.

The best time for transferring stocks is 21 days or thereabouts after swarming, as there will then be little or no brood in the hive.—Ed.

Query No. 124.—Which would be the best plan to add a Ligurian queen to an established black stock, or to make an artificial swarm and give her to the junior members of the colony?—D. D. B., *Redruth*.

Reply to Query, No. 124.—If the bees are in swarming condition we would drive out an artificial swarm, and give the Ligurian queen to the stock hive. By these means you will have the benefit of two queens at once, whereas otherwise you would have to wait for a queen to be raised. It is suicidal to destroy queens at this early season, when brood and bees are so much needed.—Ed.

Query No. 125.—I have one of Lee's prize supers on a hive (the glass one) which is fast filling. When filled, would you take it off, and put on the wooden one; or would you let the glass one remain, and put the wooden one at the top?—Robert Nicholson, *Horncastle, May 4th, 1875*.

Reply to Query, No. 125.—The best course is to put the empty super above the one nearly filled. The reasons are, that inasmuch as you would hardly remove the one now on until it was quite sealed, the waiting for the finishing touches would leave the bees only a contracted storing-space, and drive them gradually to store in the body-hive, or swarm out. Neither would it be so well to place the empty super beneath the full one, for the bees would be tempted to build comb downwards, which would continue empty for a long time, and might tempt the queen to pass up into the supers, whereas a queen would hardly leave her brood-nest, and pass through a sealed super to the newly formed cells above, and establish a second nursery.

Interfering with super arrangements, when once made, often lead the bees to act as if they were objects of plunder, and they forthwith carry down the unsealed honey, thereby choking the brood-nest and doing much harm. We allude to the practice of removing supers altogether during a spell of weather such as now obtains and feeding in the meantime. The supers in such cases are, on being returned, looked upon as prizes, and the unsealed honey at once removed.—Ed.

Query No. 126.—I beg you will put down my name as a subscriber to your *Journal*, and enclose 10*s*. 6*d*. for the current year.

May I venture to ask you a question at once? You will see at a glance that I am but a novice, though I have been tolerably successful as yet. Last year I took three swarms from two purchased the previous year as a start. They are all doing well, except one of last year's, which seemed to be the strongest till towards the end of April, when I observed a rapid falling off; and now there are only a few bees crawling about the entrance. The next skep, the swarm of which was the weakest, is now quite strong. They were all well wrapped up during the winter, and kept dry; but they had *no* feeding in the spring, as I was much from home.

Now, has this stock been lost by starvation, or could it be by the death of the queen?

Is it probable that the bees have gone into the neighbouring hive, which was very weak, and is now strong?

This all-but-deserted hive is, as far as I can see from the top, full of comb. Ought I to drive out the few bees at once, and take out the comb for wax, &c.; or, if in a clean, good state, can it be used *as it is* for a new swarm?

Am I right in inferring that my other stocks have, in the absence of all spring feeding, been saved during the severe winter by warm and dry covering?

Am I right, again, in thinking that the very strength of the stock has been its ruin, under the circumstances (many mouths), too many for the honey stored?—J. M. G., *Weybridge*.

Reply to Query No. 126.—It will probably be found that the dwindling stock was one of last year's *first* swarms, and consequently had an old queen which has died during the past winter, leaving no eggs or larvæ from which another queen could be raised, or even if one had been there would be no drones on the wing, so that she would remain unfertile (we say this with some reserve, for we once knew of a queen being fertilized after the middle of December), and the stock would perish, if anything, more rapidly than otherwise.

The strong stock, which was once weak, was doubtless the second swarm (or cast) which came from one of the originals, and having, necessarily, a young queen, has been enabled to repeople the hive rapidly.

Had there been a natural union of the stocks, there would be no remnant of bees or honey in the moribund hive, whereas there are evidently both, which is a sufficient refutation of the starvation theory.

Bees undoubtedly dwindle very much in spring when on short commons, but if not queenless they would have been enabled ere this to increase, and the stock would be improving.

There is one other cause which will reduce a stock to the condition of the one under observation, and that is the disease 'foul-brood,' the most fatal of all known bee diseases. If the stock has suffered from this fell destroyer, its combs will have a partly sealed appearance, the *domes* of the cells being concave, ragged, and perforated, and emiting a disagreeable odour. In this case the combs should be instantly destroyed and the skep burnt. Should the combs be free from sealed brood, clean, and healthy-looking (darkness is no sign of disease), they may be given as aids to a swarm; but it is not good policy to give a swarm a hivefull of comb, or having nothing else to do—no comb-building or brood to attend to—they will deposit the honey they have with them, and at once go to work in the fields, carrying and storing honey and pollen in such quantities as will prevent ovipositing by the queen, and consequently preclude the possibility of the stock becoming a strong one.

It would be better to remove half the combs, cutting away such as contain drone cells; there will be plenty of them finally.

Regarding spring feeding, as we pointed out in a former number of the *Journal*, normal colonies which went well into winter quarters, with plenty of provisions from autumn gathering, do not *require* spring feeding, although they would be all the better for it if gently administered; but in the majority of instances the autumn gatherings of bees are taken from them, and the balance of their stores destroyed. Bees do not increase according to the amount of property in possession, but according to their daily income; so that it is scarcely probable that if they were unable in the autumn to lay up stores, they would continue to increase their numbers disproportionably. In spring bees are often tempted to their destruction by exhausting their stores by overbreeding; but it is only when beguiled into false security by lovely weather and out-door abundance, followed, as at the present time, by sudden coldness preventing their foraging.—Ed.

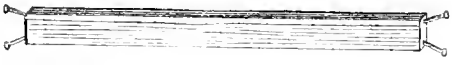
Query No. 127.—I had a fine swarm from one of my hives to-day, which I got into the Woodbury all safe. I expect a swarm from another hive immediately, which I want to unite with to-day's swarm. Will you kindly tell me the best way of doing so—whether by drawing out the floor-board, or shaking the bees in from the top? The May *Journal* came just in time for me to hive to-day's swarm, as the 'legs' on the Woodbury rather puzzled me, and had I not received it I had intended to take out the floor-board and place a broad board from ground to bottom of frames and shake the bees out upon; but your plan, so simple and successful, knocked my clumsy one on the head.

I want to straighten the comb of a frame-hive. Should I shake the bees off into another hive whilst doing so, or only straighten frame by frame, leaving the bees in the hive whilst doing so? V. O. R., *Godalming*.

Reply to Query No. 127.—*Uniting Swarms.*—Place the second swarm in a hive similar to the first, and leave it until evening, when all the bees are quiet. It should then be carried to the stand of the first swarm, gently turned bottom upwards, and set level on the ground. The bees should then be sprinkled copiously with thin scented syrup, and the hive containing the first swarm set gently over them; they will then unite peaceably, but one of the queens will certainly be killed.

Straightening Combs.—In doing this it is best to get a duplicate hive, place it upon that with the crooked combs (the crown cover being removed), and drum the latter until the bees go up into it, when it should be taken off and placed on the stand in lieu of the latter, which may be removed to any convenient spot for manipulation. The chief difficulty is generally found in the removal of a first frame of comb, but we would suggest that their removal be effected by a slightly different process to that usually pursued. We would select a frame and comb which are least disagreeably connected, and with a bent knife, fine wire, or string, would cut away all the attachments of the comb to the top bars, and would release the particular top bar from all the attachments of other combs; then turning the hive bottom upwards, we would cut away such of the bottom rails of frames as prevented the extraction of the selected comb and frame, after which the work would be simple. The combs should be taken out whole if possible, as they will be so much more convenient for tying in to the frames.

Fixing Combs in bottomless frames.—It may here be well to give a hint on this point, which often causes anxiety, as we have advised the removal of the bottom rails, and have induced many to remove them as nuisances; indeed, whether bottom rails be used or not, the contrivance will be found effective. Procure some laths, and cut them into lengths to fit between the frame ends; then drive a piece of wire into each corner, as shown in the engraving, and



apply them in lieu of plain laths under the combs to be supported, tying them up closely. These laths will slide easily up and down the frames until tied, when, if the wires be pinched towards each other round the frame ends, they will grip them tightly, and hold the combs steadily in their places.—Ed.

NOTICES TO CORRESPONDENTS & INQUIRERS.

W. G., Willaston.—Many thanks for the cuttings; we shall be glad to reprint them, but cannot find space at present. Undoubtedly the *Journal* is doing a great work.

T. R., Belvoir.—Subscription, second class, duly to hand; thanks.

Chantwell, Westerham.—The very best method of taking honey from bar-frame hives is that which is so generally adopted in America, viz., by the use of the Extractor, which clears it all out, leaving the comb intact for future use. Removing the honey from straw skeps usually involves the necessity for breaking up the colony; but if a bar-frame hive be procured, the combs, after the honey has been thrown out by the Extractor, may be tied on to the frames, as so often described in this *Journal*, and comb-brood and bees all saved.

A. Nicholson.—The safest and quickest way to clear a super of bees is to set it in a box, so that the bees can get out of it, and through an Aston's bee-trap.

J. M.—We describe *many* hives because bee-keepers cannot make up their minds to adopt one pattern. It is our mission to point out defects in hives, and we hope to go on *changing*, and improving, and cheapening hives, until the moveable comb system shall be no more expensive than that in which the skep is used

Serjeant Bona, *Roorka, India.*—Having had no experience of Indian bee-culture, we are unable to furnish the information sought. A few gardens would be of little use as a means of supporting an apiary, to say nothing of yielding a honey profit. If you have no flowering shrubs or blossoming trees, no miles of wild flowers, or fields in which honey-yielding plants are cultivated and allowed to flower, your prospect as an intending apiarian is a meagre one, and we advise you not to embark in it.

W. G. F. says, 'I can't understand why the wax-sheets must be impressed on both sides. Surely one would be sufficient: and then one plate would do, would it not?' Has any one ever tried this plan?—Ed.

*** We regret our inability, in consequence of limited space, to insert several important letters, and some answers to queries, which are in type.

BRITISH BEE-KEEPERS' ASSOCIATION.

COMMITTEE MEETING, THURSDAY, MAY 27, 1875.

Present—Messrs. COWAN, HOOKER, ATLEE, CHESHIRE, ABBOTT, and the HON. SEC.

THE Schedule of Prizes for the Second Bee and Honey Show, to be held at the Crystal Palace in September next, was revised as follows, viz.:—

SCHEDULE OF PRIZES.

Class	HIVES.	Prizes.
1	For the best hive for observation purposes, all combs to be visible on both sides	20/0 & silver medal
2	For the best moveable comb hive (to include covering) for depriving purposes	20/0 & silver medal
3	For the best hive for use on the storifying principle	20/0 & silver medal
4	For the best hive for use on the collateral principle	20/0 & silver medal
5	For the most economical (best and cheapest) complete hive on the moveable comb principle for cottagers' use...	20/0 & silver medal
6	For the best and cheapest skep for depriving purposes	20/0 & certificate

Each exhibitor must be prepared to guarantee that he will supply any number of similar hives at the prices affixed to his exhibits. The prizes will only be awarded on this understanding.

BEES.

7	For the best species or variety of honey bees (capable of cultivation in England) other than the Ligurian or black bee	40/0

The bees to be exhibited living in observatory hives.

HONEY.

8	Special Prizes offered by the Hon. and Rev. Hy. Bligh and E. Melladew, Esq., for the largest and best harvest of honey in the comb. from one stock of bees, under any system or combination of systems. The honey to be exhibited with or upon the hive that produced it (or its facsimile). To be attached thereto, a legibly written explanation of the method adopted, the locality, pasturage, dates of swarming and supering. To this may be added any particulars of his apiary which the exhibitor may be disposed to give, such as number of hives, average yield, &c.	£5,	£2 10s.,	£1 10s.,	£1.	
9	For the best exhibition of super honey from one apiary	60/0	20/0	10/0		
10	For the best straw super of honey—	40/0	30/0	20/0	15/0	12/6	7/6	5/0
11	For the best wood, or wood in combination with glass or straw, super of honey ...	40/0	30/0	20/0	15/0	12/6	7/6	5/0
12	For the best glass super of honey—	40/0	30/0	20/0	15/0	12/6	7/6	5/0
13	For the most ornamental device in honey-comb as constructed by the bees under the guidance of the bee-master			40/0	20/0			
14	For the best exhibition of run or extracted honey, in glasses of 5 lbs. to 10 lbs. each	20/0	12/6	7/6				

Class		Prizes.
15	For the best exhibition of honey in supers, or sections of supers, each separable and singly, not more than 3 lbs. in weight...	30/0 20/0 10/0

COTTAGERS' CLASSES—(NO ENTRANCE FEE.)

16	For the largest and best exhibition of super honey in comb, the property of one exhibitor, and gathered by his own bees ...	40/0 30/0 20/0 10/0 7/6 5/0
17	For the best super of honey—	30/0 20/0 15/0 7/6 5/0
18	For the best exhibition of run honey in glass jars, containing 5 lbs. to 10 lbs. each ...	30/0 20/0 15/0 10/0 7/6 5/0

All the honey and comb exhibited in the above classes must be *bónâ fide* the produce of 1875, and gathered by the bees in the natural way in the United Kingdom.

COMESTIBLES.

19	For the best liqueur or wine made from honey, with recipe attached	40/0
20	For the best sweetmeats made from honey, with recipe attached	20/0
21	For the best cakes made from honey, with recipe attached	20/0

MISCELLANEOUS.

22	For the best and largest collection of hives, bee-furniture bee-gear, and apiculturists' necessaries, no two articles to be alike	1st & 2nd certificate
23	For the best drone-trap	20/0 & bronze medal
24	For the best bee-feeder, the invention or adaptation of exhibitor	20/0 & bronze medal
25	For the best method of quieting bees during manipulation	20/0 & bronze medal
26	For the best and cheapest supers for general use in an apiary	20/0 & bronze medal
27	For the cheapest, neatest, and best supers for producing honey-comb in a saleable form	20/0 & bronze medal
28	For the best honey extractor, portability and cost to be taken into consideration	40/0 & bronze medal
29	For the finest sample of pure bees' wax, the produce of 1875, in cakes of not less than 1 lb. in weight ...	10/0 7/6 2/6
30	For any new invention calculated in the opinion of the judges to advance the culture of bees—	Silver or bronze medal at the discretion of the Judges.
31	For the best and most interesting collection of natural objects connected with apiculture, illustrating the natural history and economy of the honey bee—	Bronze medal
32	For the best MS. lecture on bee-keeping, with or without diagrams, the prize MS. to become the property of the Association	£5.
33	For the best micro-photographic slides, suitable for use in magic lantern, illustrating bees	20/0 & bronze medal

HONEY FAIR.—In addition to the prize exhibition, a distinct counter will be appropriated for the exhibition and sale of honey in comb and in glasses, and in this department sales will be permitted and goods delivered at all times during the Show. The Association will provide salesmen. All money must be paid through the hands of the clerk in attendance, and will be afterwards accounted for, less 1*d.* in each shilling for commission. Every exhibit at the sale counter must have distinctly marked on it the weight and the price, which must include the package which contains it. The Association will not undertake to break bulk. Every exhibitor in this department will be required to enter his name, &c., with the fee of 1*s.*, by Sept. 1, and must also state the amount of counter space that will be required for his exhibits.

Every hive or miscellaneous apparatus substantially the same article as exhibited last year must have in its construction a distinct improvement in the opinion of the Judges worthy of another prize; without such, and in case it should again be adjudged as the best of its class, the medal or certificate only shall be given, but if the latter, the fact of the two adjudications shall be stated on it.

PRIZE FUND, 1875.

PAID.

	£	s.	d.
Atlee, C., Esq.	1	1	0
Bagshaw, T., Esq.	1	0	0
Bayly, R., Esq.	1	1	0
Cheshire, F.	2	2	0
Clark, W. H., Esq.	0	10	0
Corbet, Rev. A.	1	0	0
Cressy, Miss A.	0	5	0
Danby, G., Esq.	0	2	6
Deaborough, J. G., Esq.	0	5	0
Dixon, A., Esq.	0	5	0
Fletcher, C. E., Esq.	0	5	0
Fox, George, Esq.	0	5	0
Frere, Rev. W. G.	0	5	0
Frith, Geo., Esq.	0	1	6
Glennie, W. O. B., Esq.	0	5	0
Harrison, T. N., Esq.	1	1	0
Hodgson, C. H., Esq.	1	1	0
Legge, Hon. and Rev. A.	1	1	0
Milles, Rev. Thos.	0	10	0
Morris, James, Esq.	0	10	0
Pagden, Mrs.	0	10	0
Page, Henry, Esq.	0	5	0
Smalley, Rev. C.	0	5	0
Welch, Thornton H., Esq.	1	0	0
Willett, Rev. F.	1	1	0

Eaton Rise, Ealing.

PROMISED.

		£	s.	d.
Bligh, Hon. and Rev. Hy.	*Special*	5	0	0
Carr, W. B., Esq.		0	10	6
Cowan, T. W., Esq.		5	0	0
Crystal Palace Company		25	0	0
Filleul, Rev. P. V. M.		0	10	6
Hooker, J. M., Esq.		1	1	0
Melladew, E., Esq.	*Special*	5	0	0
Pennell, Rev. D. W.		0	5	0
Power, Henry, Esq.		0	10	0
Raynor, Rev. G.		1	1	0
Smith, C. W., Esq.		0	10	6
Stracey, Rev. W. J.		0	10	0
Total		£60	15	6

JOHN HUNTER, *Hon. Sec.*

THE CALEDONIAN APIARIAN AND ENTOMOLOGICAL SOCIETY.

AUTUMN EXHIBITION, 8th September, 1875,
CITY HALL, GLASGOW.

Patrons:

His Grace the DUKE OF ARGYLL.
Colonel D. C. R. C. BUCHANAN, of Drumpellier.
Professor W. B. HODGSON, Edinburgh.

President:—The Hon. the LORD PROVOST OF GLASGOW.

Vice-President:—R. J. BENNETT, Esq., 50 Gordon St. Glasgow.

Secretary:—WILLIAM THOMSON, Blantyre.

Treasurer: F. Gibb DOUGALL, 167 Canning St. Calton, Glasgow.

SCHEDULE OF PRIZES,

OPEN TO ALL COMERS.

CLOVER OR FLOWER HONEY.

(*Exclusive of Heather.*)

Class A.	Prizes. 1st.	2nd.	3rd.
1. For the largest and best display of honey and honey-comb	40/	30/	20/
2. For the two best supers above 18 lbs. each	30/	20/	10/
3. For the two best supers above 12 lbs. and under 18 lbs.	20/	10/	5/
4. For the best single super above 20 lbs.	20/	10/	5/
5. For the best single super above 12 lbs. and under 20 lbs.	12/6	7/6	3/
6. For the best sample of not less than 10 lbs. of run honey	15/	10/	5/
7. For the finest super or glass, any size	10/	5/	2/6
8. For the best straw super, any size	10/	5/	2/6

HEATHER HONEY.

Class B.			
1. For the best display of honey and honey-comb	40/	30/	20/
2. For the two best supers above 18 lbs. each	30/	20/	10/
3. For the two best supers above 12 lbs. each and under 18 lbs.	20/	10/	5/
4. For the best super above 20 lbs.	20/	10/	5/
5. For the best super above 12 lbs. and under 18 lbs.	12/6	7/6	3/
6. For the best sample of strained honey not less than 10 lbs.	15/	10/	5/
7. For the finest super or glass, any size	10/	5/	2/6
8. For the best straw super, any size	10/	5/	2/6

HIVES AND WAX.

Class C.			
1. For the best sample of wax, not less than 1 lb.	7/6	5/	2/6
2. For the best sample of wax-sheets, not less than six sheets	7/6	5/	2/6
3. For the best and most perfect bar-frame hive	1st, 2nd, & 3rd Cert.		
4. For the cheapest bar-frame hive	10/	,,	,,
5. For the best and most perfect hive on the storifying principle	10/	,,	,,
6. For the cheapest hive on the storifying principle	10/	,,	,,
7. For the cheapest and most efficient honey-extractor	20/	,,	,,
8. For the best straw hive of any description	5/	,,	,,

LADIES' PRIZE.

Class D.	
1. For the best executed model or ornament in wax	GOLD RING.

CONFECTIONERS' PRIZE.

Class E.	
1. For the best comfits made from honey	CERTIFICATE.

The Society will hold its exhibition on the same day, and in conjunction with the Glasgow and West of Scotland Horticultural Society, at their September show.

All exhibitors will be subject to the rules and regulations of the Horticultural Society.

All articles intended for exhibition or competition must have a card attached, distinctly marked with class and number for which they are intended. If for exhibition only, must be so declared.

Entries must be made with the Secretary not later than the *1st day of September.*

Entry money (which must be paid at time of entry), one shilling for each exhibit.

All honey must be the *bonâ fide* property of the exhibitors, produced from their own apiaries, and to have been gathered by the bees in the natural way within the United Kingdom, and all to be the produce of 1875.

No prizes will be awarded where three lots have not been entered for competition, unless specially recommended by the judges.

Judges are empowered to withhold prizes if exhibits are not of a sufficiently meritorious character, or to award prizes for any appliances which may be exhibited, and are calculated to be of real service in the apiary.

A General Meeting of Members will be held in M'Innes' Hotel, Hutcheson Street, on 24th June, 1875, at 5 o'clock.

OUR WANT AND SALE COLUMN.

For Particulars apply to C. N. Abbott, Hanwell, W. London.

No.		s.	d.
133	'The Management of Bees.' By Samuel Bagster. 244 pages and 40 illustrations. Post-free	6	0
136	Three hives of hybrid Italian bees, in boxes with glass windows on three sides—very healthy—with young queens of last summer, will travel any distance, Somersetshire, each	40	0
138	For Sale.—One or more strong stocks of pure Ligurian bees, in Woodbury frame hives, Dublin ... ... each	50	0
139	'American Nest Hives' (by K. B. Edwards), set of four, with ekes, &c., complete, new ...	12	6
141	'Full and Plain Directions for the Management of Bees to the greatest Advantage.' By the old and able author, John Keys. Post free, in excellent preservation	7	6
143	Two 10-frame hives, projecting ends to frames, one window with three glasses, outer cases, super-cover and roof, floor-boards, crown-boards, and quilt ... ... each	25	0
144	For Sale.—Four swarms of hybrid Italians, sometime in May ... ... each	20	0
145	Taylor's 'Manual of Bee-keeping'	2	6
147	One stock of hybrids, Ligurian mother, double-cased hive, with stand, roof, and cover. Leamington	55	0
148	For Sale.—Strong swarms in straw hives in May and June. Lincolnshire ... each	15	0
149	Wanted.—To buy or borrow Vol. I. of the *British Bee Journal*. Mr. Harvey Wall, Rashwood, Droitwich.		
150	Wanted.—Clean new straight worker comb—any quantity. J. F. Newland, Wandsworth Common.		
153	Woodbury wood and glass super, hold 30 lbs., baize cover included (used)	7	0
161	'The Female Monarchy.' By Rev. John Thorley, 1744, 206 pages	3	6
162	Huish on Bees, 1844	2	6
163	Murphey's Honey Extractor direct from the maker	70	0
164	Plain Woodbury hive, with top and floor-board complete	5	0
165	Second-hand Cottage Woodbury hive (Symington's)	15	0
167	Second-hand hive, with 6 frames, Woodbury size, double-cased	5	0
168	Forty queen-boxes, twopence each, or the lot ...	5	0
169	Octagon super, wood and glass, to hold 25 lbs.	5	0
170	Large 13-frame hive, with frames, Quinby size, double-cased front and back, with glass front and 2 division boards	15	0
172	Nucleus hive, with Cheshire's twin frames ...	4	0
173	Small bee-house, to hold 2 hives, stands on four legs, and has doors at back	15	0
174	Woodbury super, with glass top and sides, mahogany frame, and adapting board ...	7	6
175	Two Octagonal supers, to hold 25 lbs. each, wood and glass	10	0
176	Neighbour's improved Cottage hive, second-hand, minus the 3 bell-glasses	15	0
177	Single frame unicomb hive, for exhibition purposes	7	6
180	Three Octagon boxes, each with glass window and shutter, to use on the storifying system	10	0

WANT AND SALE COLUMN—continued.

No.		s.	d.
181	Large Octagon box with 3 windows and shutters, has been used as a nadir	5	0
182	A Major Munn hive with glass frame for observation purposes. Good as new, half-price ...	42	0
184	One of Neighbour's Improved Cottage hives ...	5	6
185	Indiarubber Gloves, cost 6*s.* 6*d.* last year ...	5	0
187	For Sale,—One 18-in. Pettigrew	3	6
188	,, One 20-in. ,, ...	4	0
189	,, Two 20-in. nearly new	5	0
190	,, One 18-in. ,, ...	2	0
191	,, One 18-in. Yates' hive, nearly new, with new eke	2	6
192	Wanted.—A large quantity of straight worker comb, Birmingham. State price, &c., to Editor.		
193	Three second-hand ekes, 18-in. diameter each	1	0
194	One of Neighbour's Improved Cottage Hives ...	5	6
195	For Sale.—Two of Neighbour's Improved Cottage Hives, minus bell-glasses 12*s.* and	15	0
196	I will exchange a very good Unicomb hive, to hold six Woodbury frames, double glass each side; been used two years for two swarms of bees. O. Poole, Uphill, Weston-super-Mare.		
197	For Sale.—Hunter's 'Manual of Bee-keeping' (almost new)	2	0
198	Guide-plates (4 × 1½ inches), fitted, with wooden screw-press complete, for making impressed wax sheets	10	0
199	Microscopy.—Willing to exchange first-class microscopic slides, &c., for good swarms. John H. Martin, Mount Pleasant, Tunbridge Road, Maidstone.		

Just out.

The 'British Bee-keeper's' Microscope.

A useful and popular Instrument, well adapted for all Microscopic purposes.

It consists of a firm Stand, with Brass Uprights, coarse and fine Adjustments to the Body; ¼-inch Achromatic Object Glass, dividing to ½ and 1-inch; Stand Condenser for opaque objects; Diaphragm; Life-box; Stage and Dissecting Forceps. Complete, in Mahogany Cabinet, £3 10*s.*

Brass Stand Microscope, of similar construction to the above, two Eye-pieces of different powers; ¼-inch Achromatic Object Glass, dividing to ½ and 1-inch; also a 1-inch wide Angle Object Glass, for large objects; Stand Condenser; Diaphragm; Stage and Dissecting Forceps. Complete, in Mahogany Cabinet, £4 4*s.*

Binocular Bodies, with Rack Adjustments, adapted to the above, extra.

Polariscope, and other apparatus, can also be fitted.

J. W. Deacon, Optician, High Street, Sydenham.

THE TRUE STEWARTON HIVE, consisting of Two Stock-boxes and Super, 12*s.* 6*d.*; or Three Stock-boxes and Two Supers, 21*s.* Send Post-office orders to James Allan, Stewarton, Ayrshire.

PHACELIA SEED.—Strongly recommended as Bee-pasture. See *British Bee Journal*, Vol. I. p. 199. Packets 1*s.* and 2*s.* 6*d.* each, free by post from W. R. Underwood, East Thurrock Rectory, Grays, Essex.

Should be sown in succession for the next three months.

THE

British Bee Journal,

AND BEE-KEEPER'S ADVISER.

[No. 27. Vol. III.] JULY, 1875. [Published Monthly.]

Editorial, Notices, &c.

JULY.

The weather early in May gave promise of a splendid bee season, and excepting during its third week there was but little to interrupt the swarming and honey-gathering which went on so merrily; and already visions of huge supers and many filled the imagination and raised the hopes of bee-keepers to the highest pitch. The check which then occurred was but temporary, business being quickly resumed; and during the last week of May, and the first in June, indeed until the fruit-blossoms had quite departed, honey-gathering and swarming went briskly on, and the prospect was a happy one. With the cessation of fruit-blossoms there is usually an interval of some two or three weeks, during which, even under favourable conditions, little can be gathered, and the bees can barely get a hand-to-mouth living; but during that period in the past month, owing to the cold winds and the almost incessant rain-storms, they were unable to continue their avocation; and, as is usual under such circumstances, they were compelled to resort to their already gathered stores for the means of existence.

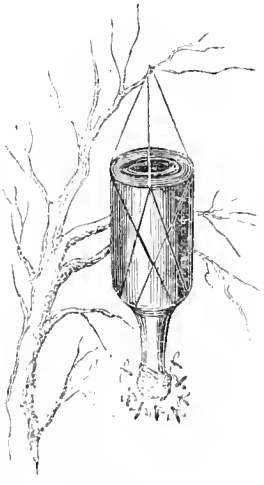
It ought to be needless to repeat that under these conditions, that is, when there is no *in*coming of honey the breeding immediately slackens; and if such period be protracted it is altogether suspended, the bees refusing to consume their stores in producing additional mouths to prey upon the diminishing reserve (?) of honey and pollen; nay, they will not only discontinue the feeding of the larvæ, but will eat them, and with them all the prepared food with which they have been supplied and the eggs which may have been deposited, and in a short time will commence unsealing the pupæ, and having devoured the soft parts of their bodies, will throw the desiccated remains out of the hive. This will explain the appearance of scraps and shreds of white fibrous meat, like fragments of lobster-flesh, on the alighting-board, which has alarmed so many of our correspondents.

The poor drones at such times are, however, usually the first to suffer, it being well understood within the colony, that when breeding is suspended swarming is out of the question, and hence they (the drones) will not be required, so they are speedily driven out of the hive or destroyed.

Late Casts.—Upon stocks that *had* swarmed the effect of the late inclement weather was most remarkable. Second swarms are *due* about nine days after the first have issued, but this year the interval has been unusually protracted, —eleven, twelve, and thirteen days having in many cases elapsed before the casts appeared. 'Yorkshire Moors' furnishes a case of two casts issuing from their parent hive so late as fourteen and fifteen days respectively after the first swarm had issued; and in our own apiary a large cast appeared on the *sixteenth* day after swarming, during a five minutes' gleam of sunshine between the storms, and in so strong a wind that they were driven by its force to a considerable distance from the apiary. Mrs. Tupper, the American apiarian, says very truly, '*that bees do nothing invariably.*'

Bees out for a Pic-nic.—For some years past, when 'a spell' of unkind weather has occurred, and our bees have been unable to get food from the natural sources, we have given them an occasional pic-nic out-of-doors; that is to say, we have invited them to 'a dance' in the garden, and refreshed and invigorated them with a liberal supply of their favourite liquor. The mode of administering it has been varied, sometimes the syrup has been placed in old combs, but the sun shining upon these created too great an odour, and in consequence our 'garden party' became too largely increased by neighbouring visitors, who could not resist what appeared to them a direct invitation, so, once and for all, old combs as out-of-door feeding dishes have been tabooed. One of the neatest and most cleanly methods of administering an out-of-door supply to bees at such a time is by the suspension of bottles of syrup from the branches of trees in the garden. Little preparation is required; each bottle has a string or wire fastened round it, so as to form either a loop or hook at its top (*i.e.* the bottom) by which to suspend it, a piece of canvas strainer is tied over its neck, and it is then hung upon

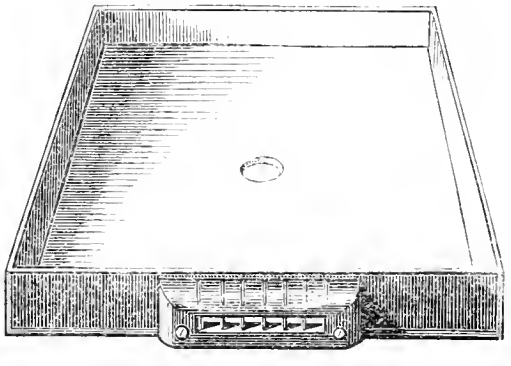
a branch, forming one big blossom, which the bees will not be slow in finding out. Out-of-door feeding is not generally recommended, but this method is, we think, almost without fault; it is cleanly, easily administered, there is no danger to the bees either from drowning or stickiness, it is the nearest approach to natural feeding, and may be easily regulated, and, be-



side all these, it is capital fun. Fancy inviting the bees to a pic-nic and disposing for their regalement a dozen or so of the 'choicest brands' suspended in the manner described! They cannot resist the invitation, but assuming their best holiday behaviour, they willingly join the festive throng and gaily dance to their own delicious music. They are not at all fastidious in their choice, and are not governed, as are many 'connoisseurs,' by either label, seal, or brand, but, like old topers, they will presently cluster round the bottle, and will never leave it whilst it contains a drop of the elixir with which it was so lately filled. We have had wine-bottles emptied three times a-day by the bees, and considering the size of the cork hole, some idea may be formed of the quantity bees can take down through perforated zinc or the top of hives when an unlimited supply is given.

The Interval between Fruit and Lime Blossoms.—We have before alluded to this interval, and cannot allow the opportunity to pass without calling attention to the inestimable value of the Phacelia tenacetifolia as a honey-yielding flower, which naturally blooms during that particular period. Sown in autumn or spring, it comes in as the fruit-blossoms go out, and continues until the limes and white clover are in full blossom. It is a fine flowering plant, and yields honey abundantly, and in a well-ordered apiary a bed of it cannot be otherwise than desirable. Borage is a useful and never-failing source of supply during all the summer and autumn months, but the Phacelia yields its full crop in the nick of time, and fills up 'the interval' splendidly. A row of buck-wheat also blossomed freely during all the month of June, but was little visited by the bees.

Removing Supers.—As it is possible that during the present month it may be necessary to remove supers from the hives, a few hints on the best means of clearing them of bees may not be out of place. We have always recommended that supers should have bottom boards of their own, so that when removal becomes necessary they might easily be lifted off intact, and the disagreeable mess made by cutting or breaking the combs from their attachments to the adapting-board avoided. In such cases the supers should be lifted off and immediately placed upon a tray similar to that exhibited in the engraving, when the bees will gradually leave the super and pass through the bee-trap, but will be unable to return. The super, if of glass, should be rendered perfectly dark, and should be put in a cool, shady place. We always use this kind of tray, because it is easily carried from place to place, and can be easily accommodated to any kind of super. As will be seen, it is open on one side, and boarded on the other, which is furnished with a central hole. If the super has its own bottom board, it should be placed upon the open side of the tray; if without, and it has to be cut or wrenched from the adapting-board, the tray should be reversed, and the super placed over the central hole (the trap being first turned the other way up), and the whole may be safely left. The engraving



represents one of Aston's admirable traps, which we have always found effective; but any other may be substituted. Many recommend that on breaking a super from the adapting-board, it should be left for a short time, that the bees may lick up the bleeding honey; but with such a trap it is better to set it at once on the tray, so that the bees already on the super may be compelled to lick it up, and, having nowhere to deposit it, must perforce leave and return to the hive. Should any brood be found in the super, it would be better to return it to its

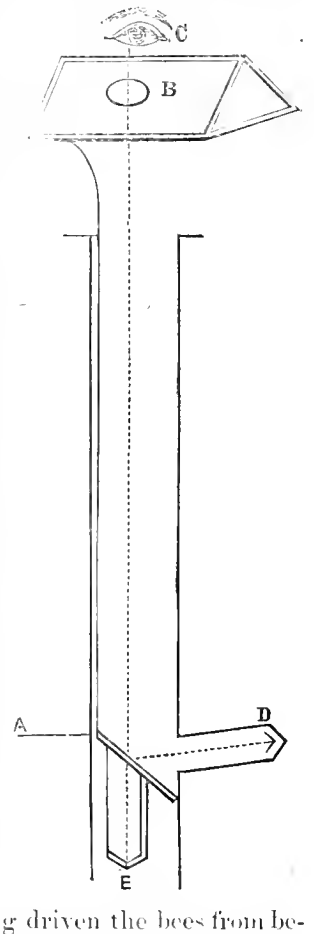
position on the hive until it has hatched out, after which the cells vacated by the young bees will be filled with honey and sealed with white wax, so that its beauty and completeness will be little interfered with. There are many other ways of ridding supers of bees—placing them in a box furnished with a trap, as described on page 49; shutting the supers in a room, and as the bees fly to the window, opening it occasionally to allow them to escape; putting a lot of supers upside down in a box covered with a sheet, and, when bees have congregated on its underside, turning it (the sheet) smartly over, so as to place them suddenly outside: these and various other methods have been found exceedingly useful, but in all cases we prefer the tray and trap.

We must caution those fortunate enough to obtain good supers against a notion which is too common, that if the super be left in a shady place, the bees will leave it of their own accord. They will, doubtless, eventually; but it will not be until they have carried away every particle of honey that it contained.

A SKEP INQUISITOR.

When a swarm has issued from a hive containing fixed combs, there has always been a period of uncertainty as to the future welfare of the colony, from the difficulty which has existed in ascertaining the fertility of the young queen succeeding. In hives with moveable combs, a minute inspection may be made at almost any time, and the presence of eggs determined; but in straw skeps this has hitherto been impossible until the brood circle extended to the lower edges of the combs, and only then could eggs in the cells be seen, by bending the combs to a considerable angle with their true position and damaging them accordingly. The presence of *sealed* brood in skeps may readily be ascertained, because the sealed cells protrude a little beyond those unsealed, and present a solid appearance which is unmistakable; but, considering that the cells are built at an angle pointing *away* from the line of vision, when the skep is inverted, and that to see eggs or young larvæ in them it would be necessary to look round this acute angle thus formed, we hope to be pardoned if we acknowledge our utter inability to do so except under the circumstances named.

Being, however, in possession of a large number of skeps from which swarms had been taken and queen-cells introduced, it became of great importance to know for certain at the earliest moment, when the young queens which issue therefrom showed signs of fertility by ovipositing, and various and many were the schemes propounded to effect this desirable object. Drumming and driving will enable one to find a queen (if present), but the contents of the unsealed cells near the centre of the combs, notwithstanding the assertions of a contemporary to the contrary, have been hitherto a mystery. Remembering as an old Volunteer, that by the introduction of a small piece of looking-glass into the breach of a rifle-barrel, a full view of the interior could be obtained, and the slightest speck of rust detected, we have been experimenting and 'prospecting' in a similar direction by introducing a reflector between the combs in a hive, and are glad to say, have been enabled to detect eggs in cells in the very centre of the hive. Here is our Inquisitor. A is a small piece of looking-glass about an inch long, and half an inch wide, attached to a wire or a strip of tin, the glass being set at an angle of 45°, or thereabouts, as shown. B is a reflector with a hole in its centre. C is the eye looking through the hole at the glass A, which is now supposed to be placed between two combs for the purpose of examining the cell D.



The operator having driven the bees from between the combs to be examined takes the end of A in one hand, and the corner of B in the other, and looking through the hole in the latter, turns it at an angle which will reflect the light on to the looking-glass A—which in its turn throws it into the cell D, rendering its condition perfectly visible to the eye, the cell and its contents appearing reflected in the glass at E. This simple machine requires a little care in its adjustment, and would doubtless be better if A and B were united, as they must both work in one plane. Perhaps some of our optician friends will take the hint and produce a cheap little instrument of easy adjustment for letting daylight into the old straw skep.

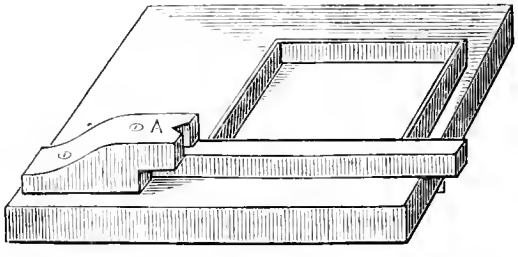
DISTANCE-GUIDES FOR FRAMES.

In our last a gauge was illustrated which showed the distances which frames should be asunder, and, supposing the frame-bars to be an inch in width (nearly), offering a ready means for gauging the central line along them as a guide for the bees to follow in comb-building; and although this is admitted to be a very desirable acquisition in an apiary, we have been met with a question which probably has occurred to many: 'Supposing I place my frames in their exact position by the gauge, how am I to be sure that they will remain so while I hive the swarm?'

Now, there are many ways of preserving the distance between frames, and the subject will doubtless secure a great deal of attention at the next Crystal Palace Show, but in the meantime we offer a suggestion which will enable the amateur to ensure correctness in all cases. A skilful bee-master will not care to use distance-guides at all, but will prefer to regulate the frames of comb by touch and eye, using the forefinger as a gauge; so that in any of the many changes or chances which may occur, there shall be no impediment to the free and easy movement of every comb in the hive. Young hands, however, require some kind of 'guides,' and, perhaps, the simplest are plain tacks or nails driven into the sides of the top-bars of the frames. The chief advantage of this kind of guide is that it may be so easily removed when it is found to be in the way, as invariably happens in hives which have no dummy frame which may first be removed to create space, and permit of the frames being moved laterally.

When distance-pins are used, it is better to place them one on either side of the frame-bar, so that *its* position may be reversed without interfering with *their* effectiveness. As explained in the June *Journal*, p. 25, it is necessary that the centres of the frames should be 1 and 9–20ths inches apart, and it is therefore necessary that the frame-bar and the projecting tack, or pin, shall occupy that distance only. Our first idea was to get some pins of the exact length and drive them quite through the frame-bars on to an iron bench plate, so that the head only should project, but from irregularity in their length, and the strength of their points, this method did not answer. Next we tried large square hob-nails: these stand out a quarter of an inch, and present flat heads nearly a quarter inch across; and we hoped, when placed 'in exact position,' that coming head-to-head they would form perfect distance-guides; and when the frames were all correctly cut to the right width they did very well; but sometimes the width of the frames varied, and then the hob-nails, if driven home, were wrong, and if left sticking out were objects for propolizing; so we discarded them in favour of single pins, which, as before said, are driven into the sides of the frames, one at each end (nearly).

In fixing these pins, the chief objects are to keep them at even distances from the ends of the frames so that they shall come in line when in use, and to ensure that they stand out exactly the right distance. To secure this an oak cleat, A, should be cut and screwed on to a board or table of exactly 1 and 9–20ths inches in height, a corner being cut out of it at bottom to allow the frame end to be placed under the



projecting portion; when, if the pin be driven into the side of the frame through the **V** notch in the cleat, the latter will prevent its going too far into the frame, and, notwithstanding any deviation in the frame's width, the distance-pin will necessarily be correct. In fixing the cleat it should be sufficiently near the side or end of the board or table to allow one end of the frame-bar to project beyond it, or, when the first pin has been driven, the frame will not lie flat and the second would be driven aslant.

LIGURIAN *v.* BLACK BEES—INTERESTING THE COTTAGER.

A great deal has lately been written respecting the merits of these races of bees, and various plans have been proposed to test their respective value, but none have been sufficiently satisfactory to induce a public trial, there appearing to be a difficulty in arranging a 'match' between them so as to ensure perfect equality at starting. There is undoubtedly a great deal of public spirit amongst bee-keepers, and an evident desire on the part of many, especially of the clergy, to induce the rural cottager to adopt the keeping of bees on improved principles, as a means of increasing their incomes and bettering their worldly positions. Now, we think there are few who have attempted to talk the cottager into the pursuit, who will not acknowledge the fruitlessness of their efforts, and their well-nigh despair of inducing those of his class who already keep bees to abandon their murderous and destructive

method of 'taking up' their stocks in autumn. Since writing about the respective merits of bees, and talking to induce cottagers to keep them in a sensible way, appear to be futile, we wish to suggest a method, which, without greatly taxing the patriotic feeling of those so anxious to promote bee-culture, will, we think, tend greatly to solve the vexed question of value of the races respectively, and will, we are sure, most forcibly attack the prejudices; and enlist the sympathies of the hard-to-be-persuaded cottager in the improved system of bee-keeping.

We propose that the champions of both kinds of bees, and all bee-keepers who desire to promote their culture amongst the rural working classes, shall dedicate one of this year's swarms of bees—his favourite kind, in a hive approved by himself—to the poor of his parish, the profits to be devoted to one or more of the club charities or funds which, thanks to the clergy, are everywhere established to benefit the deserving poor. Here is the opportunity for proving the relative merits of Ligurian and English bees, testing the value of hives, and forcing, not only upon the cottager, but upon the world at large, in a most forcible and pleasing manner, the advantages which accrue from the pleasant pursuit the donors so strongly recommend; and we are confident that such efforts, wisely controlled and fostered by the donors themselves, would be more convincing than all the wordy arguments which can be brought to bear on the subject. Last year we dedicated a swarm of pure Ligurian bees in a Woodbury hive to this purpose; and already it has yielded a profit of two guineas, which will figure in the Annual Report of the Hanwell Charity Funds, and will, we hope, be supplemented by a pretty little sum obtained by the sale of the honey yet to be achieved.

INTRODUCING HONEY TO SCHOOLS.

The Board of Management of the Central London School District, under the advice of their medical officer, are about to introduce honey into the dietary of the pauper children at their schools at Hanwell. There can be little doubt but that the children (averaging upwards of a thousand) will be delighted with the queenly occupation of 'eating bread and honey,' the acme of felicity as inculcated by an old nursery rhyme; and bee-keepers will be glad to know that a movement is beginning which, if followed, will create a demand, and open a market for their produce. Honey, even at *a shilling* per pound, must be better for children than the doubtful butter (?) sold at that price; and if the subject is worthy the attention of the managers of great public institutions like the County Asylum and the justly celebrated Cuckoo Schools (both at Hanwell, we are proud to know), it surely ought to commend itself to the attention of the proprietors of private schools and the heads of families.

BEES BEFORE THE MAGISTRATES.

The Visiting Committee of Justices of the Middlesex County Lunatic Asylum at Hanwell, to be certain that only honey of absolute purity shall be used in their dispensaries, have commenced BEE-KEEPING on their own account, in the hope of securing the necessary supplies. The Editor of the *British Bee Journal* has had the honour of supplying them with three natural swarms of pure Ligurians, which are located in an enclosure near the Asylum entrance lodge, where they may be seen from the Uxbridge Road. 'The Apiary' will doubtless form the heading of a distinct account in 'the Annual Report' of the Justices, and bee-keeping may therefore be said to be 'before the Bench' on trial. The public in this case may rest assured that these gentlemen will 'nothing extenuate nor aught set down in malice,' and hence the TRIAL will be most interesting, and the verdict, an important one to the country at large, will be anxiously awaited.

CALEDONIAN APIARIAN AND ENTOMOLOGICAL SOCIETY.

The quarterly meeting of this society was held in M'Innes's Hotel, Hutcheson Street, Glasgow, Mr. R. J. Bennett, Vice-president, presiding. The chairman submitted specimens of eggs, larva cocoons, and male and female wax-moth (*Achroia crisella*). Mr. T. Chapman exhibited Colorado bettle (*Doryphora decemlineata*). The Vice-president reported that he had received a number of donations from country gentlemen towards the prize fund. Judges of honey, hives, &c., were nominated: the Editor of the *British Bee Journal* being appointed foreman and sole arbiter, his decision in all cases to be final.

'ANOTHER ATTRACTION FOR THE GRANTHAM HORTICULTURAL SHOW.—We are informed that Mr. Charles Nash Abbott, the great bee-master of Hanwell, and editor of the *British Bee Journal*, will pay a visit to Grantham during the Horticultural Exhibition, and has kindly promised to give exhibitions with bees at the cricket-field, showing what may be done by skilful bee management. To the naturalist and man of science the "little busy bee" affords a never-ending store of nature's wonders; and we would recommend those who are interested, as also those who at present are not interested, in bee-culture, to avail themselves of this opportunity of witnessing Mr. Abbott's illustrations.'—*From the 'Grantham Journal.'*

Correspondence.

*** *These columns are open to Subscribers, so that their queries, replies, correspondence, and experiences, may be* fully *and* faithfully *recorded; and for the discussion of all theories and systems in Bee-culture, and of the relative merits of all hives and appurtenances, that the truth regarding them may be ascertained. The Editor, therefore, must not be expected to coincide with all the views expressed by the various writers. All Correspondence is addressed to the Editor.*

THE EXTRACTOR—PERFORATED ZINC—WAX-SHEETS, &c.

With your permission I will just give you a little of my experience with my Extractor. On four evenings, without difficulty, I extracted over 80 lbs. of the most beautiful honey I have ever had, gathered by the bees from trifolium and trefoin. In *Journal of Horticulture*, back in the winter, Mr. Hunter spoke of the extractor, as at present made, putting him in mind of a garden-engine; but for two or three hours' slinging, what is the use of a small one where any one has thirty or forty stocks? He would not want to stop in the middle of slinging the combs to empty the extractor of the honey, which would be up to the bottom of the cage. I have made a small one that answers first-rate; it takes Woodbury frames. Extreme depth of cage, $15\frac{3}{4} \times 9$ inches wide, the cylinder is about 15 inches diameter and 20 inches deep altogether. It works on the same principle as my larger ones, only there is no wood frame round the cylinder; the wheel and strap I find is the quietest and smoothest to work, and likewise the cheapest. I will get it photographed and send you a copy as soon as I can get it into Leamington. You spoke in the last *Journal* of a cage to hold only one frame, as being desirable; but I find when slinging that it is much better to operate on two combs at a time as, if only one comb is put in and something to balance the other side, when the honey is slung out of course that gets lighter, whereas the other side, being only weighted, does not lose from its weight, and then the machine is apt to jump.

Well now, about the $\frac{5}{8}$th perforated zinc, I had great difficulty in getting some the right size; but through the kindness of Mr. Poole, who sent me a bit as pattern, I got some and placed it over four $1\frac{1}{2}$ inch holes on the top of one of my large hives with 15 frames, and whose upper story I had supplied with drone-combs. I had previously put combs on a little too soon, as the bees were not getting honey very rapidly, and the consequence was, the queen went up and laid hundreds of eggs in the drone-combs, and I then removed the upper story to put on the zinc, and I saw after I had put it on that the bees could get through, though not rapidly, but still they got through. The upper story then was put on again, thinking all was right, but on looking at them several times I thought they did not seem to be so full as usual: so, after seven or eight days, I took some of the frames out, and, to my surprise, there were hundreds of bees dead! They could not get through rapidly enough, so had actually blocked up all the holes, and were beginning to stink. The zinc might do if all the top of the hive were covered with it, and no honey-board; but no more zinc for me: the queen may lay eggs in upper stories if she likes. When I was writing to you on the subject, you said you did not hold with it, and it has proved itself (in my case, at all events) as worse than nothing at all.

In two swarms that I have had this year the bees lost their queens, but *I* found them and gave them to the bees, who had returned to their hives, and given up seeking them for a bad job.

The plates for making wax-sheets are first-rate, as the bees build straight when the impressed sheet is fixed along centre of frame. I, too, should be glad to see a letter, now and then, from our much-esteemed friend, R. Symington, Esq., whose pen has lain dormant, at least for our *Journal*, for so many months. If any gentleman, living near Leamington, would like to see the extractor at work, and will write to me, I shall be most happy to show it to him. I remain, as of old,—A Warwickshire Bee-Keeper, *June* 22, 1875.

TWO QUEENS IN A HIVE.

I am at my wits' end about what to you, I have no doubt, is an easily explained thing, viz., what I think is two surplus queens in one of my hives, but you will be able to judge when I explain the matter. Two nights ago, while putting on some syrup, to my dismay I found a dozen or more dead bees in my feeder—which, I may explain, is a top feeder, and never taken off. As there was a number of live bees, I made my porter take off the lid and give them a whiff of tobacco-smoke. This, of course, put them in a great state of fear, and I managed to pour on the syrup while they were running up and down.

We next proceeded to fish out the dead bees, and while doing so displaced some of the live ones, when, to our mutual astonishment, we observed two queens running about in all directions, and seemingly afraid to venture down the tube into the hive. One of them, however, we did manage to make to run down, and the other one my porter saved from suicide amongst the syrup, which it was evidently determined to do, by getting it to mount on the end of a stick and then dropping it at the door, into which it made its entrance in quick time. I speculated a bit upon the matter, but made nothing of it, so concluded to let the bees deal with the extra rulers as they thought best. To-night again I fed them, and found a further quantity of dead bees in the feeders, and just as I got the dead ones raked out, up runs a queen, all besmeared with syrup, to a group of live bees congregated in the tube, who immediately proceeded to suck her dry as I thought. As to-night is bitterly cold, I did not wait, but put on the lid for fear of chilling them too much, and now I don't know very well what to make of it all.

I never had dead bees in such number in my feeder before, and I can only account for it on the supposition that a number of them stay in the feeders to keep the young queen warm, and get chilled during the night. The hive is quite full of bees, so far as I can see, and is only two years old, and only swarmed once last year.

There are a good few robber-bees flying about this hive, and at one time I thought it might be some of them who had penetrated to the feeders and had there got killed, but my former supposition is, I rather think, the right one. You can, however, give me your kind advice, which will be esteemed.

All my other hives are doing well, and well stocked with bees, but I have seen no appearance of drones as yet, and until they show face I suppose I need not expect to get a swarm.

I had one hive that died during the winter. You might not remember I wrote regarding the appearance of some drones in it in the month of December, and as you thought the queen was not the right thing, you gave me your advice. It lived through the severe storm, and succumbed later on. The hive was full of honey all sealed, but only a very small quantity of bees.

I hope you are doing well in bee-furnitnre and bees.—D. B. Brunton, *East Grange, April* 21.

[Note.—As you suggest, the phenomenon is capable of easy explanation. The bees have prepared to swarm, and probably would have done so had the fine weather continued, but being delayed through the untoward change, the young queens have hatched out, without the old ones feeling disposed to lead off the swarm. This state of things has probably been brought about by your feeding them, and thus inducing them to think summer had come. The multiplicity of queens causing a civil war in the hive, the young ones have been obliged to seek shelter anywhere away from the indignation of the reigning mother. Naturally, some bees would have a regard for the queens they had nursed into life, and would stay by them in all their grief, hence their devotion in the mire of sweets.—Ed.].

WINTER VENTILATION—DISTANCE GAUGES—HIVE-SHAPE.

It was only a few weeks ago that I became aware of the existence of either the *British Bee Journal* or the Bee-keepers' Association. They were then brought under my notice by a circular addressed to me by the secretary of the latter Association. I immediately went to my bookseller and ordered the numbers of the *Journal* for the past year which are now to hand.

In looking over them the first thing that attracted my attention was the use of what is called 'the quilt.' I am very glad to see such an important improvement brought prominently forward. I can speak most highly of its use. For nearly twenty years I have used a modification of what is now recommended. Before frame-hives were known, and I used common wooden boxes, I used to make from twelve to twenty large holes in the top with a centre-bit. These were covered firmly with wire gauze, and on the top was placed a double fold of soft flannel, covered above all with a double sack. By these means I avoided all damp. Later, I used bars, which were covered in the same way; and, latterly, I have always used the same appliances with frame-hives. I would urge upon your attention the utility of the plan here suggested. Cover your frames with a piece of wire-gauze or perforated zinc before putting on the quilt. It would not be very expensive, and the covering could be changed frequently without disturbing a single bee. A sheet of wire gauze can be made right by having a strip of tin or piece of wire soldered round the edges. All cases of failure with the quilt arise from one of these causes—either it is covered up too closely, or else it is never changed. Fancy our sleeping in one pair of sheets for six months! By having the perforated covering, and frequently changing or drying the quilt, I think the perfection of this species of covering is arrived at, and *there is no fear of damp.*

In looking over your *Journal* for this month, I come across your gauge and scraper—a most serviceable and useful little instrument. But I should like to know one thing, why is such a wide space allowed from centre to centre of the guides? Is your gauge constructed solely for Ligurians? I am not asking a captious question, but simply for information. My own gauge is I inch 6-20ths, and I never use any other. Since reading your article I have obtained access to every straw skep I could lay hands on, and find that out of nearly fifty not one exceeds the distance I have alluded to in the distance between the centres of the combs. Why, then, is it recommended to have a different rule to that which the bees themselves observe? I find invariably that when the distance is extended to an inch and a half, there is a large quantity of drone-comb built; but, perhaps, as Mr. Pettigrew observes, bees in Wales do differently to others. At all events, I should like to know the *rationale* of the distance you have chosen.

I should like to say one word on the shape of hives. How very desirable it is that there should be uniformity of size of frames! I am convinced from very careful experiments that the distance from front to rear in frame-hives is much too great. My own hives, which are called the 'Cardiff hives,' do not exceed 9 or 10 inches (internal measurement), and I have fourteen or fifteen frames. These are easier to manage, better for breeding, better every way. No one knows the luxury of handling those frames till they have tried it. They are extracted and inserted with disturbances to fewer bees, they are not so heavy, the bees fill them sooner, and they are more convenient. I have another sort of hive in use, but it is longer, broader, and *shallower* than the ordinary frame-hives. These have an advantage, a larger space is open for ventilation by the quilt, and the advantage of shallower combs, is very great. I shall probably enter upon this subject again.

The dismal weather which is consuming the best part of this month, is causing all the best flowers to 'waste their fragrance on the desert air,' for the poor bees cannot get out to rob them of their treasures. —A Cardiff Bee Master.

[In our method of applying the quilt, it is never necessary to change it, unless during the summer time it becomes disagreeably coated with wax or propolis—it never gets wet, so does not require drying. We have never tried wire-gauze, fearing that the bees would seal it up, and render it impervious; besides which, there has been the fear of condensation and consequent moisture.

If the bees in Wales build combs only 1 inch 6-20ths from centre to centre of each other, Mr. Pettigrew's observation is correct, for they are certainly of different habits to those which are cultivated in England. We have measured the combs in hundreds of stocks, as did also

the late Mr. Woodbury, and his rule of ten combs in 14½ inches, is so nearly correct, that we are not inclined to quarrel with it. If anything, there is a tendency to *increase* the distance between the centres of frames, and in our New Frame-bar Hive, we have allowed a full one-and-a-half inches. Several correspondents do not consider even this sufficient, and are increasing the distance with good results; but whether this is owing to improvement in the bee, through the cultivation and crossing of the several varieties, remains to be proved.

The question of hive-shape is a most important one, but we have a most decided preference for those which are longest in the direction of the frames, *i.e.*, from front to rear.

Will our esteemed correspondent favour us with his reasons for saying that the short frames he recommends are 'better for breeding,' and 'better every way?'—Ed.]

BEE-INOCULATION.

In reply to your correspondent, and for the information of such of your readers as take an interest in the subject, I have much pleasure in narrating my further experiences in bee-inoculation.

Since I last wrote in the *Bee Journal* I have carefully noted the effects of the numerous stings I have received, which amount to over sixty in number, so that now I have been stung over a hundred times since last October.

I do not mean to assert, as the fruits of that experience, that I am totally insensible to bee-stings, but only that I feel no pain after the first few minutes, and, as a rule, there is little or no swelling in the parts affected.

Last Saturday (June 5) I was following out the Symington plan of storifying, and got severely stung through insufficient protection.

One bee stung me just on the left side of the mouth, which swelled so considerably that my mouth was quite distorted; but, notwithstanding the swelling, there was no pain.

At the same time I was stung on the feet, the right arm, and the forehead; but from none of these stings was there any swelling, and there was neither pain nor irritation.

Moreover, I can now work with my bees without any bee-dress; and it is only when I have any large operation that I think of putting it on.

So far, then, as my experience goes I think I may venture to assert that there is something in bee-inoculation which merits further investigation, and I wish that some one else would try the experiment. The more he is affected by stings the more complete the experiment would be; and, after all, there is not much inconvenience in the operation, as, after the first week or so, the system becomes so saturated with the bee-poison that the stings are comparatively painless.—George Walker, Jun., *Cottenham, Wimbledon.*

HONEY SEASON.

The present season thus far is one of the best ever known for bee-keepers in this district, even eclipsing the splendid summer of last year. Ere May had left us, stocks had more sealed comb than is usually the case at the close of the season. For a wide distance around my apiary there are any number of large hawthorns, some, I presume, a century old. For the last few weeks they have been one mass of snowy blossoms, to which the bees did ample justice, as my stocks and supers testify. The honey from the may, I find, is of thinner consistency and more aromatic than that culled from other sources. The fields and meadows, too, contribute their share of flowers in an unusual degree this year; and until within the last few days we have had but little wet weather to hinder the work of honey-gathering. I have three supers just ready to remove, weighing respectively 43, 34, and 28 lbs., neither of which has been on the stocks three weeks. That is not bad; and my bees are of the old English race—at present I have no Ligurians. My first swarm came out May 24, settling most inconveniently in two clusters in the very heart of a large, bushy gooseberry tree. While I was engaged in brushing one lot into the hive, the others, disturbed, flew back to the parent stock. As there were barely two pints of bees in the hive, this state of affairs could not, of course, be permitted to continue. The swarm in the first place was very small, though from a populous colony in a straw skep. I then removed the stock some fifty yards distant, placing the swarm in its place, allowing them to remain undisturbed until the sun was low in the western sky, when an examination was made, and with a satisfactory result, inasmuch as the hive was nearly full of bees—two gallons at least. In less than a fortnight it was completely filled with comb and honey. It now weighs 53 lbs., hive included. A few days since, to prevent the hazard of swarming, I placed a super on it. Should the weather continue fine the former may meet with honourable mention, if not something more, at our autumn show. — Alfred Rusbridge, *Sidlesham, Chichester, June* 14.

A VISIT TO HANWELL.

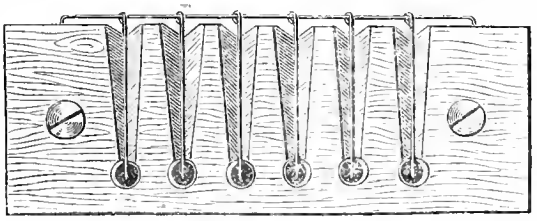
Among the pleasant recollections of a Whitsun holiday I cannot forbear naming my visit to our worthy Editor's, as one of the most agreeable and instructive. Although personally unknown to each other, we had become acquainted by correspondence, and a few minutes sufficed to make us personal friends, especially as it was understood that I was in search of information on the subject of bees and their management. I cannot but thank him for his courtesy, and the readiness he showed of answering my numerous questions. It would trespass too much on the space allowed for correspondents to write their views, were I to attempt a full account of what passed. I may say that our Editor must have the welfare of both bees and their keepers at heart, or he would never trouble himself with the editorship of the *Bee Journal*, and the extensive correspondence incidental to it, but would enjoy bee-keeping by applying his thoroughly practical knowledge in his own apiary. Others write books on the subject of bee-management, but what I saw and heard there, added to what has come to hand, either through his private correspondence or the columns of the *Bee Journal*, leads me to regret that he does not give us a work on the subject.—A Hampshire Bee-Keeper.

CATCHING A SWARM.

Will you kindly give me a little space to describe the plan I have adopted for several years? I have long since given up the use of a brush or bunch of twigs, and use instead a large wine-glass or tumbler; even if the swarm is in a position to be shaken into the hive, I prefer my plan. Having first placed the hive, of whatever construction it may be, in its proper position (that is, all the parts put together), I take a glass full of the bees from the swarm, and *gently pour them* in front of and close to the entrance of the hive; the bees will readily run in if they are quietly emptied from the glass, if they are rudely shaken out they will take wing and rejoin the swarm. Generally, in the first four or five glasses I catch a sight of the queen, and having once seen her safely housed, no more trouble need be taken, as the rest of the swarm will soon miss the queen and take wing, to join their companions in the hive. All this may be done without the loss of a single bee; and I am sure that when once the plan has been tried, the brush will never again be used, as you are certain to find some bees killed or disabled, either by the brush, or by the hive being turned down upon some unfortunate bees, however careful you may be. A smooth terra-cotta flowerpot will answer as well as a glass, but a rough one will not do, as the bees will not pour.—J. G. Desborough, 12 *St. Peter's Hill, Stamford.*

TRAP FOR CLEARING SUPERS.

Herewith I send a bee-trap I have been making, one of which I have tried, and which seems to answer very well. I should like to know what you think



of it. If it is worth anything make what use of it you please. Have you got the steel gauge for frames made yet? If so, please send me one: say how much it is and I will send stamps.—Robert Nicholson.

[When *nicely* made the trap will work well. It is much the same in principle as the Cheshire five-pin trap, and would be safer if each wire 'fall' had two pins to guide it, and prevent its getting out of order.

The gauge is the subject of correspondence with a Birmingham firm, and will, we hope, soon be produced. —Ed.]

BEES SWARMING FROM SUPERS.

Your correspondent 'Devon' if he has not clipped the wings of his queen might destroy her, if she came out again, and follow the course I took with respect to a hive *which would swarm*, detailed in the extract from my note-book in the year 1847. If you think the reply worth publishing you may do so.

Extract from my Note-book for the year 1847:—

Stock No. 4. June 8. Heard piping, but never saw swarm rise, and never missed the bees, as to numbers, either from the stock hive or glasses.

June 10. Found young queen dead on alighting-board.

„ 11. A swarm or cast issued; caught queen and returned the bees.

„ 15. Came out again, and I killed the queen, as she was coming out of the hive.

„ 19. Came out again, and I killed two queens, after they had settled, returned them.

„ 20. Caught another queen on the alighting-board.

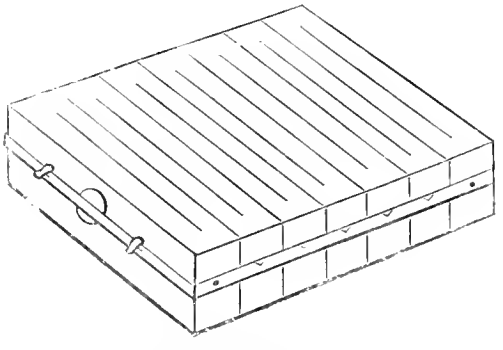
„ 22. Came out again, deprived them of queen, and returned them.

„ 25. Came out again, and joined bees from Nos. 2 and 3. The bees from 2 and 4 having all swarmed together, and formed one lump, I took them in two common straw hives. I afterwards dashed them all out on a white cloth, picked out 3 queens, and then distributed the bees amongst each of the hives 2, 3, and 4, and they all afterwards worked well. No. 4 produced 40 lbs. of honey in glass.

J. G. Desborough, *Stamford.*

APIARIAN NOTES.

I am just now trying the divisional supers. Some very good ones are manufactured by Messrs. Neighbour, but I think a great improvement would be effected if the whole were enclosed in a frame, with two thumb-screws at the sides, so as to press the whole close together. As they are now sent out they are very draughty, which make the bees take a great dislike to them, and I advise every one before using them to run a rim of wax round the join of each section; also, to get a slit cut with key-hole saw



through the top of each frame, for the purpose of fixing wax-sheets, or the bees will not build straight combs, and thus the super is rendered unfit for its original purpose.

Have any of your readers tried driving bees into a super when they have refused to accept it? I have done so several times with success. Most of my supers are 14½ inches square, the same size as the Woodbury hive, and of various depths, and the bars always fitted either with guide-combs or impressed wax-sheets, and the cover wetted over with a little honey to attract the bees. Now, if the bees refuse the additional space afforded by the super, and show signs of want of room in the stock, my mode of procedure is as follows:—Removing the crown-board and

sending down among the combs a few good puffs of smoke, replacing the same with a sheet of perforated zinc to prevent the queen's entrance to the super. On the zinc I place the super, prepared as before described; I now drum loudly for five or ten minutes, and drive as many bees as I want into the super, and put on about a pint of honey-syrup in a bottle. This plan I have scarcely ever known to fail; of course it is not required in every case, for generally if a super be put on at the proper time the bees will at once accept it; but in some cases the bees are obstinate, and for some cause or other refuse the offered space, when the above plan will be found very advantageous.—O. POOLE.

THE ASSOCIATION.

I see by the June number of the *Journal*, that the Société d'Apiculture de la Gironde, Bordeaux, meets monthly.

Cannot it be arranged for the British Bee-keepers' Association to do likewise? If so, I should like to become a member; but at present, I do not see any object in joining. (I do not profess to be a philanthropist.) When I first took to photography as a hobby, I used to belong to a photographic society, and the monthly meetings at which I met other amateurs were most instructive and enjoyable.

I expect I am only one of some hundreds living in the suburbs of London who were seized with the desire to keep bees, from the articles in the *Standard* and the Crystal Palace Bee Show; and if the meetings were held in London once a-month at, say seven P.M., so as to suit business men, no doubt many subscribers would be attracted. There are constantly little difficulties occurring which are not worth troubling you, Sir, about, but which would be perhaps interesting to others if mentioned in the the course of discussion at a meeting.

What do you, 'the Bee-Master' *par excellence*, think of the suggestion? I hope some plan may be concocted before next month's *Journal* appears.—F. L. *Clapham, 14th June*, 1875.

[We quite agree with the writer of the above. Complaints are becoming general that the Association is conferring no benefits on its members, and fulfilling none of the promises made in behalf of cottagers, except in so far as the Crystal Palace Show may exercise an influence in that direction. Could not the members call a general meeting, and take steps to bring about the desirable object suggested by our correspondent?—Ed.]

LATE CASTS—PURITY OF LIGURIANS.

One of my Ligurian hives has performed a feat hitherto unheard-of in these parts. It threw off a first swarm—a very large one—on May 16th. The weather changed soon after this to cold and wet. The 30th of May was a fine, warm day, and at nine a.m. (exactly a fortnight after the first) came the second swarm—this, also, a large swarm for a cast; and, to the surprise of every one, the *next day* (May 31st) came a third. Men who have kept bees about here for thirty years have never known such a thing before. The cold weather had detained the second swarm, I suppose, until there were so many hatched that they were ready to throw off the two thus almost together.

One of my Ligurian families is quite a different colour from the rest. I got two queens last year from a noted firm, and their offspring consists of quite dark bees, with a broad red band and a few thin streaks of red across their bodies, yet quite distinct from our common English bee. I got two queens from you last autumn: one unfortunately was killed; the other has bred an entirely different bee from that I have described, both much lighter coloured and far more waspish-looking, with well-defined light and dark stripes all over. I suspect that what was first supplied to me was a cross. Is it not so?—YORKSHIRE MOORS.

[There are as many complexions in Ligurian as in English bees, which vary from lightish brown to jet-black. If the bees, the progeny of a Ligurian queen, are all marked alike, we should consider them pure. Such a queen, if fertilized by an English drone, would be sure to produce some bees as black as the drone's sisters, which would at once determine the stock's impurity.—ED.]

WAX-SHEETS.

Do you not think a *roller* might be cast for impressing wax-sheets? I thought of having one made as an experiment, but find some difficulty, which, perhaps, you would not experience. It seems to me that, if such a roller could be procured, it might, by means of a handle, with a pin passed through the roller, be applied to the surface of the sheet with sufficient force to impress one side. Probably if the sheet, slightly warmed, were cut the size of the bar and laid on it, the passing of the roller over it would press it at the same time to the bar with sufficient firmness to cause it to adhere. If this little implement, which in construction would somewhat resemble the rollers used for inking type, could be made, it would be less expensive than a pair of plates fitted up for work in any of the ways that have been suggested. If you think my idea of any value, make what use of it you like.—W. J. F., *Wolverhampton.*

[Our correspondent appears to be under the impression that the wax-sheet is applied flat against the bar, whereas it is intended to hang by one edge, which is *held* against the bar, whilst melted wax is poured along at their junction, and which, when cold, fixes it firmly in its place.—ED.]

DISEASE, OR POISON?

I had not time to write you when I sent you a few dead bees on the 15th inst.; but as promised I now proceed to give you an account of the case. The owner of the hives, a member of our local Bee Club, sent for me on Tuesday last to see if I could give him an idea of what had gone wrong with two of his hives, in which the bees had been dying in great numbers for three or four days previously. Accordingly I went up to his place expecting to see a case of robbery; in this, however, I was quite mistaken, as the following description of the case will show: and that you may the better understand the case, it will be as well you should have some idea of how my friend's apiary is situated. It is in the outskirts of the town, and is within about 500 yards from a number of market gardens, and about the same distance from our cemetery, in the latter of which there is almost every description of flowering and flowerless shrubs; beyond which is the open country, abounding in

the richest bee-pasturage, and but for a large sugar-refinery in the immediate vicinity it would, in my estimation, be pretty favourably situated. My friend has seven hives, four being Lanarkshire bar-frame hives and three straw skeps, the whole being kept in an octagon bee-house of the most improved construction.

Having now given you an idea of the surroundings, I will endeavour to describe the affected hives, which, by the way, are the three *straw skeps* (not two, as my friend at first supposed). In front of the darting-boards the ground—or, rather, pieces of canvas spread thereon—is completely covered with dead and dying bees; and on turning up the hives there would at least be a good tumblerful of dead bees on the bottom boards. The bees seem to become suddenly paralyzed, and in a great measure lose the power of their legs; they go into convulsions, and appear to be in intense agony, their bodies being contorted in a distressing manner. While examining the hives, some of the bees would drop from the combs, as if they had been touched with some burning acid or a red-hot wire, and would go whirling round and round on the floor or bottom-board, now falling on their one side, then on the other, and sometimes rolling over on to their backs, on which they would lie for a second or two quite motionless, and then give one great convulsive bound and perish at once as if blasted by lightning. While watching at the alighting-board, I saw bees arrive at its edge heavily loaded with pollen, but before they could run inside the hive they were seized with convulsions, and affected as already described. The bees had the appearance of being much swollen, as if gorged with honey; and on being opened, the intestines of all the affected bees were found to be of a peculiar light or dark green colour, in some cases almost black, which gave off a strange and very offensive smell. One of the hives had almost no honey, but the other two had abundance, and there was brood in each of them in every stage of development.

This disease, if disease it is, is quite new to me, and to all the other bee-keepers I have spoken to on the subject, including even the well-known 'Lanarkshire Bee-keeper;' but we are all pretty much agreed that the bees are getting poison, but from what source is the mystery. One gentleman in the same neighbourhood, but nearer the cemetery, had two of his best stocks (also in straw skeps) affected in the same *manner and at the same time*, one of which he removed a distance of *two* miles into the country, and it still continues to get weaker every day; the other he removed a distance of *four* miles, and from the time it was removed until now it has not lost a bee, but is gradually recovering. He, I may say, is under the impression that it is caused by the bees feeding on some poisonous plant in the cemetery. This, however, I do not believe. My impression is that some person has had one of their hives *clean* robbed out, and out of revenge, or a worse motive, they have placed poisoned feeding in the robbed hive to be revenged on the robbers. I have never known anything of the sort done, but I remember being told long ago by an old bee-keeper that it was sometimes done. I hope, however, for the credit of bee-keepers in this district, that this is not the cause in the present instance: if it is, I hope they may be found out, and get themselves thoroughly disgraced. I will be glad to have your opinion on this matter at your convenience. I would also like that you, or any of your readers, would say if they know of any flower or shrub which would produce the effect described on bees, or what poison would do it.—J. W., *Alma Villa, Gourock, April* 17.

[We confess ourselves fairly puzzled, unless the disease is a species of 'vertigo,' of which we have read, but cannot remember more than that it was not accounted for satisfactorily. Can any of our readers throw any light on the subject? Of course we should not publish the names of poisons which might be used by vindictive wretches, such as are supposed to be the cause of the mortality; but if our correspondent is informed of those that will destroy bee life, he may find out who has purchased such in his neighbourhood, and trace the perpetrator of the villany.—Ed.]

IVY HONEY—PETTIGREW CHALLENGE.

I promised to let you know the result of my examination of the stocks in which I left the ivy honey. On examining them the first week in this month, I found the bees had consumed a great deal of it; and a second inspection last week confirms the fact, that I was wrong in removing the part I did in November, as it appears to be well suited for spring feeding; however, in my case, the error is not of much consequence, as all the stocks are still well supplied.

Woollen tops have again proved themselves to be a perfect form of winter covering. Not one of my stocks (over thirty) showed the least sign of damp, nor was there a dead bee on the floor-boards, except in two cases, where the stocks were rather weak, and dropsy had slightly thinned their numbers further.

Pettigrew's Challenge, Native and Ligurian Bees.—I hope there is some one to take it up. If I were anywhere near I would not hesitate to do so. After a long experience and fair trial, I find the Ligurians pay well for the trouble of introducing them, as, although with bees in the same garden, it is difficult to keep the strain pure, I find the Ligurian blood in the hybrids is a decided advantage; and when they can be kept pure, the Ligurians are more profitable and gather more honey.—E. Walpole, Junior, *Windsor Lodge, Monkstown, Co. Dublin*, 31st March.

SUBSCRIPTIONS TO THE *JOURNAL*.

May I make a suggestion for your consideration with regard to the *Bee Journal*? Instead of a first-class subscription of 10*s.* 6*d.* and a second-class of 6*s.*, make one subscription of 6*s.*; and if any subscriber should wish to have information from you by return of post, instead of waiting until the issue of the monthly number of the *Bee Journal*, it should be necessary for him to send a certain number of stamps or a P.O. Order as a fee for the speedy information. Some first-class subscribers, perhaps, do not have occasion to consult you at all, as the *Journal* contains so much information and advice; others, perhaps, may write continually.

I fancy many people would subscribe 6*s.* for the *Journal*, with the opportunity of getting speedy information by paying a small fee, who think 10*s.* 6*d.* too much to pay at once, particularly when there is a chance of their not requiring advice in a hurry. I do not think you would lose by this plan.—S. T. Blandford, *Dorset*.

[Under present circumstances the correspondence imposed upon us is almost more than we can manage, and we cannot hire help, therefore we hesitate before opening the door to a scheme for increasing it. We are *willing* to give all the information in our power, but our right hand often protests, and we must not neglect first-class subscribers in favour of others; therefore, while thanking our correspondent for his suggestion, we must decline at present to comply with it.—Ed.]

GLASS HIVES.

I transferred my bees at last (now a fortnight ago), and perhaps the means I adopted to afford all the bees an opportunity of gorging themselves *before* turning up the hive may be serviceable. I bored a hole here and there with a bradawl and injected some syrup with a syringe (an ordinary medical glass one) and found it answered very well. I have read a good deal about hives with double glass sides, and so I have made some; but find, first, that eggs which were laid in some new comb in the outside frames were, in the course of a few hours after being shifted into the glass sided hives, all removed by the bees, and they have not since worked at the outside combs, they remain as clean as when first built: secondly, that in the early morning the inside is covered with condensed moisture—this seems to promise badly for winter; I hoped the dead air between the glasses would prevent this. I see in your reply to query 114, that you say the bees will pull down the wax-sheets if too thick and use up the waste. After transferring, I placed a tray under the hives out of curiosity to see what was thrown out, and I found a lot of broken comb in pieces of all sizes up to that of a pea. If they use the waste wax in one case I should have expected they would in another.*

I always understood that watchers were always on duty inside the entrance to hives. From repeated observations (which the glass sides, back and front of my hives permit), I have never seen at night whether by moonlight or candlelight a single bee on the floor-board. If any of the above is of use to your readers, all right; if not, you have, like all editors, a W.P.B. I only think it right, if I can in my little way give a hint, to do so.

My glass hives are very simply made, and if of any value I shall be glad to send you details.—F. Lyon, *Clapham.*

A MISSING QUEEN.

I had yesterday to take a swarm of bees on the ground, round the stem of a bush. Spreading a sheet I propped up the hive with two small flower-pots (2-inch), the nearest things at hand. After sweeping the bees on to the sheet the queen got on a small branch which was hanging down against the hive, this I cut off and put under the hive. The bees went in and were quiet for a short time, then began to run round the outside of the hive at a great pace; between twelve and four o'clock they rose in a mass seven times, going back each time to continue the race round the hive.

At dark they were all in the hive, but too quiet for all to be right. I lifted them on to the floor-board and left them quiet while I took up the sheet, when the secret was out. The queen, although I had seen and put her in under the hive, was lost. She had climbed up the flower-pot and tumbled through the little hole, and in after her had gone as many of her faithful subjects as the pot would hold. Once in they could not get out. I put the pot over the hole in the crown-board, and in a few seconds there was a most satisfactory hum, and all was right. Moral—A flower-pot is one of the easiest things for a bee to climb up, but mind the hole is stopped.—Px. *May* 15, 1875.

* The cases are not parallel: in one the bees must take the particles of wax in their mandibles, and that too while actually comb-building, but in the other the chips of comb are simply carried away by scavengers. Pray tell us how your hives are made?—Ed.

A BEE-PUZZLE.

I believe I have, in virtue of my subscription to the magazine (which God speed), a right to ask a question or two.

I have a very obstinate lot of bees, and after using every persuasive art possible, they will not move a jot. Here is my case, kindly advise:—

For six weeks past the bees of one hive have visited the bees of another upon the most friendly terms, sharing each other's stores. Although the queens in each are ovipositing, having seen the eggs extruded by both, yet no hatching is going on, nor a bit of pollen carried in. Numbers are gradually dying off. I have given sheets of brood, almost hatching out, but apparently to no purpose. No progress forward, all being retrogression. On Friday last the queen of one came out and entered by mistake to another hive, and so paid the penalty of death. Yesterday the queen of the other took a flight with her attendants, but, with a better memory, returned. She has not much more than three-fourths of a pint of bees. Shall I give her only two combs; she has four to roam over?—J. D., *Croydon.*

[We confess ourselves fairly puzzled to account for these vagaries. Can any of our readers throw light upon them?—Ed.]

EXPERIENCE.

I am delighted to tell you that since last I wrote you the swarm that I hived in your New Frame-Bar Hive I have been feeding through two holes; to-day I determined to open it and see how they were going on. Well, I got my bellows and some syrup; then I gave a few puffs into the entrance, waited about a minute or so, then removed carpet and gave them a little more to send them off top of frames, and I then sprinkled some syrup and relaid the carpet for a minute or so; after that I raised the carpet again and set to work, taking out dummy first, to give room. Then I took out each frame, and replaced it before I took another. Then, at last, I put back the dummy, being delighted with the opening of my first new frame hive. I have often heard such fearful accounts of opening these hives that I was afraid to begin. But will I be so again? No, never. I had not the least trouble; every frame came out between my finger and thumb, so you may guess. If any one wants to know how they answer, let them write to me. I have now four of them and a Nutt and Neighbour Cottage, also a common straw. These three I will send adrift, and keep only the one kind, as you advise, and that one your New Frame-bar Hive. You are at liberty to use this letter for any purpose, if of any use.—J. Drinkall, *Castle Street, Carlisle, June* 12.

THE COMING SHOW.

I have been looking over the Schedule of Prizes, and I think there is one thing that gives amateur bee-keepers (I mean those who, perhaps, may have a few good hives, take a great interest in their bees, yet do not go in for 'nothing else') a small chance against men who have large apiaries, and that is, Class 9 and 16, 14 and 15. In agricultural shows, for instance, where prizes are offered for the best collection of any particular breed of cattle, the rule is this: for a man farming say 1000 acres so many pairs of cows or head of cattle, say 10; for one of 600, 6; and so down in proportion to 300, with 3 pairs. So that if the small man has 3 pairs of cows better than the big man's 10 pairs, he wins the prize. Now I think it would give a better chance to every one if you had a similar rule, that if a man who shows the produce of 20, 40, 60, 80, 90, or any number, if the supers are better filled and purer in proportion to the number of hives shown from, that man ought to get the prize. For instance, A B may have 130 hives in his garden, C D 40; only C D's supers are excellent, all filled well up, and A B's very middling; but his weight in the aggregate far exceeding C D's he gets the prize, simply from having so many more hives. I merely throw this out as a suggestion to you.—T. J., *June* 2.

VARIOUS ITEMS.

Ligurian and Black Bees.—The question has often been asked, Are Ligurian bees better than English bees? and the general opinion appears to be in favour of the Ligurians. To throw in a doubt seems like presumption. However, it has struck me, from careful observation, that in *one* respect Ligurians are inferior, viz. they are more liable to be affected by dampness than the English.

Take an example—I have two hives of Ligurians, one of which was, at the end of last autumn, strengthened with a weak stock of English bees. During the last severe winter both hives were affected with dysentery. The *black* bees in the Ligurian hive were scarcely affected, but the Ligurians in the same hive suffered dreadfully. Both hives are now weak, but the few black bees seem to carry in the most pollen.

I don't keep bees for profit, and therefore (apart from every other consideration) prefer the beauty of the Ligurians.

Longevity of Bees.—On the 10th day of July I inserted a Ligurian queen in English bar frame-hive, and in six weeks after the appearance of the Ligurians not a single black bee remained. This, you will see, was when the bees were right in the middle of their labours, and therefore the disappearance of all the blacks so soon I can only attribute to the thousands of bees which get lost whilst foraging.

Again, a queen (Ligurian) was inserted in another English hive (frame) on the 24th day of August, and to-day in this hive (which is very strong) I have more black bees than Ligurians, clearly showing that were it not for the losses incurred by outside work that the bees would live longer than is generally supposed. This hive has not been affected with dysentery in the least.

Shrivelled Wings.—I noticed the other day two young bees crawl out of one of my hives with their wings shrivelled up, as though they had been singed with a flame. Can you account for this?

Starling's Honey-extractor and Frame-hives.—Last year you spoke approvingly of the Extractor. How did you manage with the frames of your hives? The loose wire transferring frames will not admit of the hive frames being inserted; and when I tried the hive frame in the Extractor loose, after two or three revolutions the comb broke from the frame.

One of my Ligurian queens produces extremely beautiful bees, but having been very much affected with dysentery they are now very weak, and, I am afraid, will hardly be able to keep alive. Can I strengthen them in any way by robbing a straw hive of blacks at this time of the year; or do you think that having managed so long they will be able to go on increasing? They go in on fine days, one and two at a time, loaded with pollen. The shrivelled-winged young bees came out of this hive.—INQUIRER, *May* 12, 1875.

REMOVING STOCKS TO THE MOORS.

I shall be very glad if one of your correspondents having experience in conveying hives to the moors, will favour me with an answer to the following:—How can frame hives with young combs best be safely removed to the moors, where the removal must be by conveyance? I once attempted to do this, and at the end of the journey found the tender combs hopelessly broken down and the stock ruined.—PRESTONKIRK.

Foreign Intelligence.

ITALY.

Most favourable reports are constantly reaching the office of the Italian Bee-keepers' Association as to the result of this season, so far. From all parts of the Peninsula the hives seem to teem with bees and honey, and the Extractor is turned to great advantage.

The demand for shares in the Industrial Bee Company does not appear to make great progress. An extension of time has been given for the purchase thereof.

With a view to assist bee-keepers generally, a regular Agency has been established in connexion with the journal *Apicoltore*, the object being to facilitate the sale and the acquisition of bee-produce, bee-furniture, &c., to the best advantage.

GERMANY.

Next autumn an International Horticultural Exhibition will be held at Cologne (on the Rhine). Apiculture will be included, and bee-keepers of all countries are invited to exhibit. Several special prizes will be offered to this branch of industry.

BOHEMIA.

A new bee journal, called *Der Bienenvater aus Bohmen* (*The Bohemian Apiculturist*), has made its appearance at Prague.

FRANCE.

A great Entomological Exhibition, comprising Apiculture, has been fixed to be held in Paris next year. It will be open from 15th August to 10th September. Exhibitors, foreign and colonial, will be admitted. The rules and conditions of same, for the guidance of intending exhibitors, are set forth in our contemporary the *Apiculteur* for June.

Several local Apicultural Shows have already been held, mostly in connexion with agricultural exhibitions; these two branches have of late assumed the plan of marching hand in hand.

Throughout France the present season is viewed as a favourable one for honey, but as regards swarming, some amount of dissatisfaction is reported from various departments. Honey, however, is expected to sell well, as many markets out of stock are only waiting the opportunity to effect important purchases. A meeting of producers and buyers of this article was convened in Paris for the 6th June, to consider the general state of supply and demand for the present season.

As a proof of the increasing interest taken in apiculture, the need is being felt of the *Apiculteur* being published twice a-month, say on the first and fifteenth of each month. The publishers accept, on principle, the suggestion, and in all probability this will be carried out next year, with a corresponding advance in the rate of subscription.

The Society of French Agriculturists has also decided to offer a competition in apicultural matters, at which a prize of 500 francs will be given.

AMERICA.

Gleanings on Bee Culture.—The Editor says: 'The superiority of the Italians has been so fully demonstrated in thousands of apiaries that we cannot think it a duty to devote space to the subject. Those who write us for our opinion on the matter must accept this in place of mentioning their various merits in detail.'

ECHOES FROM THE HIVES.

Haden Cross, Dudley, June 10.—'Bees here are not doing well in honey-gathering, the weather is so dry, and the winds so chilly that I think but little honey is elaborated in the flowers.'

M. Freeman, Slinfold, May 29.—'I have three bell-glasses full and two bar-boxes nearly full of fruit-honey, I believe from pear-blossom, as we have about ten thousand pear-trees near me, and they have all been in full blossom for three weeks. I am always first in swarming in this neighbourhood, and will tell the readers of the *Journal*, in time for next year, how I treat my stocks in spring to obtain this result.'

Hampshire, June 18.—'My Ligurian queen is in the habit of coming out about 1 o'clock on most fine days, takes a short flight and returns. She is so strong on the wing, I am concerned lest she should lead her swarm clean off when it issues. Is it a usual thing for queens to do this?

[Certainly not except they be young queens seeking their partners.—Ed.]

Mid-Lincolnshire, June 19.—'Swarms are plentiful in this neighbourhood, but honey seems to be scarce so far. Very little is done in supers at present, we have had a lot of windy days lately attended by sudden storms.'

Whitehall, S.W., June 11.—'I have profited much by the very enjoyable visit I paid you last week, and my bees are progressing well. Would that all my hives were bar-frame, as then I should have no trouble with the swarms, as I have at present, in getting them out. I have two or three very unmanageable old straw hives, of a great weight. One hive on top of the other to give more room last year, and the perverse little rascals have been hanging out for the last three weeks, and won't swarm. Several of the more manageable I have driven, and are in bar-frame hives, and in splendid condition.'—W. F.

Kings Somborne, Hants, May 17.—'Swarming commenced here on the 10th, quite the usual time with us. I have had four swarms already, and others coming on fast. The winter has been hard in light stocks: most folk have lost them who did not attend to them early.'

Queries and Replies.

Query No. 128.—As a constant reader of your *Bee Journal*, I resolve to ask you two or three questions, the answers to which I shall be thankful to receive through the medium of your columns. Last night I took a swarm off from a stock-hive artificially. The bees were clustered in six's deep on the face of the hive: what would have been the best method of dealing with them? As it was, I spooned them into a skep, which so irritated them that they immediately used their means of defence wherever opportunity presented itself.

2. Treatises on bee-culture tell us that in swarming, our little favourites take with them a supply of food, sufficient for three days, I think. Now, suppose the bees hanging out in clusters for days and then swarming—is it conceivable that the three days' provision can have been saved?

I shall be thankful for your opinion.—E. T. C., *Hitchin.*

[As our correspondent did not satisfy us that he had secured the queen with the artificial swarm, we offered a few suggestions on the point and received the following.—Ed.]

Allow me to thank you much for your note respecting the swarms I have taken off artificially. But I am not so inexperienced as you suppose. I first spooned into an empty hive the bees that were clustering, and then drummed the hive up, and secured not far short of a peck of bees, queen and all. Both the swarms I have taken are doing well. But what I wanted to know of you was whether there was not some better way of securing the bees I *spooned*, and which became very angry at the operation. How, in short, would you take off an artificial swarm, with the bees hanging out in a cluster on the alighting-board in a bunch twice the size of your two fists, and covering several deep the front of your hive? Will you in your columns discuss that subject?

2. Also can you answer my query about the food taken off by bees when they swarm *naturally?* Books tell us that they carry off three days' food, and are therefore tame through surfeit. How can this be, if they have been hanging out of the hive for more than three days? This is a next question.

3. I am full of interest in bees, and desire to spread that interest among my neighbours. I hope to experiment (as I am doing) this summer, and to lecture thereon in the fall and winter. But what can be done without diagrams? Are there any, descriptive of the internal economy of a hive? If so, will you kindly name them in your columns? If not, do you think them of sufficient importance, and so likely to secure a sale as to venture on the speculation? E. T. C.

Reply to Query, No. 128.—We would first drive all the bees into the hive by giving them a taste of smoke, then turn the hive up, and give them a sprinkling of thin syrup, after which driving would proceed in the usual way. It will be useless objecting that the hive could not contain the outlying clusters, as would be proved by a sudden fall of temperature, when of their own accord they would disappear into the hive.

Bees invariably take with them in their honey sacs sufficient honey to last them from three to five days when swarming naturally, but that they do not keep their honey sacs charged when lying outside the hive is proved by your experience, as had they been so laden, they would not have been so ill-tempered. Indeed, if they had their bodies full of honey, they could not cluster without producing wax, which they seldom do until they have determined to build comb

beneath or about the hive, in which case they seldom swarm. Again, clusters of bees may often be seen hanging about a hive for two or three weeks before swarming, and to suppose that they kept their honey sacs full all that time, would be absurd. The clusters, it will be observed, generally diminish during the day by the bees going to their labours, and increase again towards evening when they return, so that it cannot be held that the clusters *remain* for the period stated. Preparation for swarming by filling the honey bags must take a long time when hives are crammed with brood and sealed honey, leaving only a few open honey cells in the hive from which the bees must in turn draw their supplies, and therefore it is not improbable that those outside prepare beforehand when natural swarming is intended.

The procuring of diagrams to illustrate lectures ought, we think, to have been the first work of the British Bee-keepers' Association, as they are undoubtedly of the first importance as a means of conveying instruction and information. This, however, has not been done; nevertheless, feeling the necessity for some such aids, and knowing that nothing of the kind existed in England except such as may have been drawn by hand, we have imported a set from Austria, which we hope *our* Association will be induced to imitate. It can hardly be expected that we should do everything, but we do not object to strive.—Ed.

Query No. 129.—I am again about troubling you with a lot of queries relative to bees.

1. Will you kindly send me instructions for forming a nucleus, and description of hive for same; also in what way they are useful?

2. Will it do to make an artificial swarm from my Italians (which are very strong) before I can see any drones in the hive, which I have not as yet?

3. How can I tell when a queen is impregnated?

4. Which of the plans for introducing do you like best, the cage stuck in the comb, or one like Mr. Raynor's, or the Lanarkshire one (March number)?

5. How do you catch the queen, so as not to hurt her, or let her sting?

6. Are rags steeped in weak saltpetre injurious for fumigating?

7. Are hybrids better honey-gatherers than pure ones of either race?

8. Would it be a good plan to drone-trap a hive that is supered? I put one on a black stock yesterday, and saw several drones.

9. If I get all my stocks Ligurians or Ligurianized, should I be likely to keep them so?

10. How soon after swarming time would it do to transfer the lot that swarmed, also the swarm, provided the swarm was hived in a non-framed hive?

11. If a hive is filled entirely with worker-comb, would the bees elongate some of the cells for drones?

By answering the above questions at your earliest convenience, you will oblige. The weather here is capital—only want rain. Blossoms out fine, and bees working as bees ought to work. There is a splendid bloom on the fruit-trees, of which we have a great many.—H. W., *Dublin, May 5.*

Reply to Query, No. 129.—A nucleus is formed by placing a few young bees in a small hive with a few pieces of comb and some brood, so that they may nurse and hatch out a sealed queen-cell, and form the attendants of the young queen until she has become fertile and her progeny have declared, by their markings, the purity or otherwise of her fertilization. A nucleus, it will be at once seen, thus does for the time the work of a whole colony, and effects a great saving of labour in an apiary. To form one it is necessary to procure a hive and furnish it with from two to four small combs. In Italy and Switzerland, where queen-raising is largely practised, they use a hive $6\frac{3}{8}$ high, $5\frac{7}{8}$ wide, and $6\frac{3}{4}$ from front to back, all inside measurement, the entrance being about $\frac{3}{4}$ inch wide and $\frac{1}{4}$ high. These hives hold each four small frames, which are filled with combs, one at least of which should contain brood; the frames are $5\frac{1}{2}$ in. wide and $5\frac{1}{5}$ deep outside, the projections at end of top bar being each $\frac{3}{8}$ long, and rest on rabbets in the hive, which are formed by nailing narrow strips of wood along the inside of the nucleus hive, a little way from the top. The whole arrangement is very temporary in appearance, indeed, nucleus hives, as a rule, are makeshifts for the time being, having no use during the winter months.

To stock a nucleus, take several frames from a strong hive, from the combs of which young bees are rapidly hatching, and which consequently will be fairly covered with those which, never having flown, will remain where they are placed, and these should be shaken from the frames into and upon the open nucleus hive. The downy young bees will at once creep amongst its combs, but the older ones will take wing and return to their old stand, and this process should be repeated until the nucleus hive is fairly stocked. By the adoption of Mr. Cheshire's twin frames for nucleus hives, the formation of nuclei is very much simplified, as each pair of small frames lock together and form one frame, which may be placed in a large hive and left until its cells are filled with brood ready to hatch out, or they may be left until queen-cells are raised upon them, and then restored to the nucleus hive. They should be so contrived that only one queen-cell is allotted to each nucleus. The best policy with nuclei is to give them sealed queen-cells from a strong stock to hatch, and not to force them to raise queens by themselves.

2. It is not good policy to make artificial swarms before drones appear, as their non-appearance indicates a want of ripeness in the hive. We do not mean to say that the appearance of drones is a guarantee of fitness for artificial swarming, but it is safer when they are present than otherwise.

3. The fertility of a queen can only be determined by her dissection, or by waiting the result of her ovipositing. If her eggs in worker-cells become worker or queen bees, she has been fertilized, if drones only are produced, she is unfertile.

4. If we have had any preference, it has been in favour of cages in which the queen could be certain of food; but later experience proves this to be unnecessary.

5. It does not matter how you catch the queen, so that you do not press or hurt her; pick her up as if picking up a bean, between the thumb and finger—she cannot sting.

6. Rags steeped in saltpetre are not injurious for quieting bees unless used in excess, a puff or two will do no harm.

7. We believe hybrids are better honey-gatherers, better breeders, more active, and better stingers than the pure of either race.

8. Unless the hive is over burdened with drones, we would not destroy them; if drones are too numerous the stock will not want a super, as its strength would be exhausted in raising them.

9. Ligurian stocks seldom remain pure after the queens have departed if black drones abound in the neighbourhood, as the young princesses have a natural repugnance to wedding with blood-relations.

10. Twenty-one days after swarming is the best time for transferring the old stock to bar-frame hives. New swarms must not be transferred, owing to the difficulty of supporting the comb, which is too new and tender to bear handling.

11. A fertile queen cannot breed drones in worker-cells, except by accident—*i.e.*, an egg may occasionally pass the spermatheca without being vivified, but although laid in a worker-cell it is detected by the nurse-bees, and the cell is elongated for its convenience.—Ed.

Query No. 130.—I would be obliged if you could explain the reasons for the following unlucky phenomenon. I have one of my stocks in a Berkshire hive, which is very strong. On the 4th of May I put one of the supers on, and the bees at once took possession, and have nearly filled it with comb. At the end of last week I found them hanging outside of the hive, and looking as if they wanted more room; so I gave the other super, of which they also took possession, and commenced building comb. But last night, when I looked at them, I found the whole bottom of the super one mass of dead bees. I removed them, and found them to measure 1 quart, or 4000 bees. I cleaned out the slits, and returned the super. I cannot make out the cause of this strange affair, as the bees in the stock-hive and other super are working and looking well. Can it be that the three-sixteenths-of-an-inch slits do not allow room enough to the bees to go in and out of the super from the stock hive? and what had I better do to avoid a repetition?—Enm. N. G., *Alphington*.

Reply to Query No. 130.—The only solution we can offer to this 'phenomenon' is, that the slide giving admission to the super became accidentally closed. There is nothing in the construction of the hive to account for such a mortality. Had it been due to the three-sixteenths-of-an-inch slits, the other super would have been in a similar condition. There being three slits in each super of four inches in length, it is hardly likely that they would become so choked with living bees as to lead to the catastrophe.—Ed.

NOTICES TO CORRESPONDENTS & INQUIRERS.

Upwell Isle.—It is difficult to assign a reason for the bees attacking yourself or family. Do the latter wear scented oil or pomade on their hair? Are the hives liable to be shaken by the opening or closing of the garden gate? Are they liable to be disturbed by clothes-lines or any other connection with their stands? We cannot recommend anything with a strong odour which will prevent the bees coming near you. Better to remove the cause of their irritability, if you can discover it.

Ligurian Bees.—It is quite possible that the bees may be pure without being beautiful. If they are a cross, there will be some *black* bees amongst them, unless the cross was a remote one; in which case there will be some whose gold or orange bands are ill-defined and imperfect.

N. M., *Gravesend*.—Where everything is a trouble, it is wise to decline bee-keeping, and 'everything' else.

A Novice.—The bees will doubtless work down out of the milk-pail into the Woodbury hive, and at the end of the honey season the pail may be removed as a super, but it will depend upon the weather and the honey yield during the next few weeks whether or not they will have filled the hive. A strong swarm ought to do as much as this. When the eke and the hive do not touch, a little plaster of Paris made into mortar may be used to cement them together. Fresh cow-dung is useful for the purpose, since when dry it is tough and fibrous, and will become of about the colour of the straw. Unless you intend to take the honey from your hives, no union of bees in autumn will be necessary, as, if tended as per *Journal*, they will be strong enough to stand the winter alone. The best advice to give your cottage neighbours in autumn will be to drive the bees out of their hives, instead of murdering them; and when taking their honey, to preserve all the pieces of brood and pollen comb, and fix them into the frames of a cheap hive, and afterwards add the bees. Any one '*taking up*' four or five stocks would be able to save sufficient of what would otherwise be useless, to build up a valuable stock of bees. If the cottagers will not do this, is it not possible to do it for them, if only to set them an example?

Gauge for Guides.—We have been favoured by Mr. Cheshire with the proof of an engraving of a gauge, intended for *The Country*. It differs materially from that illustrated in our last, but as it may be thought an imitation, in justice to Mr. Cheshire we assert that it is not so, as his engraving was in existence before ours was published.

Grantham.—The index and title-page to Vol. II. were duly announced in the April number of the Journal. It is sent with covers for binding, post free, for 1*s.* 3*d.*

Eaton Socon.—The account of the bees in the barrel will appear next month. We should have taken out one end of cask, jarred the bees down on the ground, set a hive over them, and in the evening taken them to the garden and set them on a stand.

T. T., *Dorset*.—There will be no difficulty in driving the queenless bees; but they cannot be united in the garden to any but the nearest stock, which should be moved a little towards it. It would be far better to give them a queen, as the season is early yet; or, if you could get a second swarm and add to them it would be better still.

Simplex.—Bees will gnaw away almost any material, if they can bite it, and for this reason carpet having a hard back we have always used and recommended it as the best material to place close to the bees. It has, however, occurred to us that if a covering were first laid on the frames, of the material hair-sieves are bottomed with, and which we think is called tammy cloth, all inconvenience from nibbling bees would be avoided. The experiment shall be tried during the ensuing summer.

J. C. J., *East Moseley*.—You are at liberty to see our bees whenever you please, but we should prefer that you select a fine day. It would be better to defer your visit until they are active in the spring, as then you may have a practical lesson in manipulation.

Bishop Stortford.—To prevent fighting when transferring stocks to equalize them, they should be fed for a few hours on syrup, strongly scented with peppermint, and the queens should be caged before transferring, and for forty-eight hours afterwards. The safest and most simple queen-cage was described in last month's *Journal*.

*** We beg to remind our Subscribers that the Subscriptions for Vol. III. were due in May last.

Covers for binding, including title-page and index, can be sent post free for 1*s.* 3*d.*

BRITISH BEE-KEEPERS' ASSOCIATION.

COMMITTEE MEETING, THURSDAY, MAY 27, 1875.

Present—Messrs. COWAN, HOOKER, ATLEE, CHESHIRE, ABBOTT, and the HON. SEC.

THE Schedule of Prizes for the Second Bee and Honey Show, to be held at the Crystal Palace in September next, was revised, and may be found on page 38 of Journal.

PRIZE FUND, 1875.

PAID.

	£	s.	d.
Atlee, C., Esq.	1	1	0
Bagshaw, T., Esq.	1	0	0
Bassano, W., Esq.	1	1	0
Bayly, R., Esq.	1	1	0
Bligh, Hon. and Rev. Hy. ...Special	5	0	0
Cheshire, F., Esq.	2	2	0
Clark, W. H., Esq.	0	10	0
Corbet, Rev. A.	1	0	0
Cowan, T. W., Esq.	5	0	0
Cressy, Miss A.	0	5	0
Danby, G., Esq.	0	2	6
Desborough, J. G., Esq.	0	5	0
Dixon, A., Esq.	0	5	0
Fletcher, C. E., Esq.	0	5	0
Fox, George, Esq.	0	5	0
Frere, Rev. W. G.	0	5	0
Frith, Geo., Esq.	0	1	6
Glennie, W. O. B., Esq.	0	5	0
Harrison, T. N., Esq.	1	1	0
Hodgson, C. H., Esq.	1	1	0
Legge, Hon. and Rev. A.	1	1	0
Milles, Rev. Thos.	0	10	0
Morris, James, Esq.	0	10	0
Pagden, Mrs.	0	10	0
Page, Henry, Esq.	0	5	0
Poole, O., Esq.	1	0	0
Smalley, Rev. C.	0	5	0
Smith, C. W., Esq.	0	10	6
Welch, Thornton H., Esq.	1	0	0
Willett, Rev. F.	1	1	0

PROMISED.

	£	s.	d.
Carr, W. B., Esq.	0	10	6
Crystal Palace Company	25	0	0
Filleul, Rev. P. V. M.	0	10	6
Hooker, J. M., Esq.	1	1	0
Jackson, F. R., Esq.	1	1	0
Melladew, E., Esq. ...Special	5	0	0
Pennell, Rev. D. W.	0	5	0
Power, Henry, Esq.	0	10	0
Raynor, Rev. G.	1	1	0
Stracey, Rev. W. J.	0	10	0
Total	£63	17	6

Eaton Rise, Ealing.

JOHN HUNTER, *Hon. Sec.*

THE CALEDONIAN APIARIAN AND ENTOMOLOGICAL SOCIETY.

AUTUMN EXHIBITION, 8th September, 1875,
CITY HALL, GLASGOW.

Patrons:

His Grace the DUKE OF ARGYLL.
Colonel D. C. R C. BUCHANAN, of Drumpellier.
Professor W. B. HODGSON, Edinburgh.

President:—The Hon. the LORD PROVOST OF GLASGOW.

Vice-President:—R. J. BENNETT. Esq., 50 Gordon St. Glasgow.

Secretary:—WILLIAM THOMSON, Blantyre.

Treasurer: F. Gibb DOUGALL, 167 Canning St. Calton, Glasgow.

SCHEDULE OF PRIZES,

OPEN TO ALL COMERS.

CLOVER OR FLOWER HONEY.

(*Exclusive of Heather.*)

Class A.	Prizes. 1st.	2nd.	3rd.
1. For the largest and best display of honey and honey-comb	40/	30/	20/
2. For the two best supers above 18 lbs. each	30/	20/	10/
3. For the two best supers above 12 lbs. and under 18 lbs,	20/	10/	5/
4. For the best single super above 20 lbs.	20/	10/	5/
5. For the best single super above 12 lbs. and under 20 lbs.	12/6	7/6	3/
6. For the best sample of not less than 10 lbs. of run honey	15/	10/	5/
7. For the finest super or glass, any size	10/	5/	2/6
8. For the best straw super, any size	10/	5/	2/6

Class B. HEATHER HONEY.			
1. For the best display of honey and honey-comb	40/	30/	20/
2. For the two best supers above 18 lbs. each	30/	20/	10/
3. For the two best supers above 12 lbs. each and under 18 lbs.	20/	10/	5/
4. For the best super above 20 lbs.	20/	10/	5/
5. For the best super above 12 lbs. and under 18 lbs.	12/6	7/6	3/
6. For the best sample of strained honey not less than 10 lbs.	15/	10/	5/
7. For the finest super or glass, any size	10/	5/	2/6
8. For the best straw super, any size	10/	5/	2/6

Class C. HIVES AND WAX.			
1. For the best sample of wax, not less than 1 lb.	7/6	5/	2/6
2. For the best sample of wax-sheets, not less than six sheets	7/6	5/	2/6
3. For the best and most perfect bar-frame hive	1st, 2nd, & 3rd Cert.		
4. For the cheapest bar-frame hive	10/	,,	,,
5. For the best and most perfect hive on the storifying principle	10/	,,	,,
6. For the cheapest hive on the storifying principle	10/	,,	,,
7. For the cheapest and most efficient honey-extractor	20/	,,	,,
8. For the best straw hive of any description	5/	,,	,,

Class D. LADIES' PRIZE.

1. For the best executed model or ornament in wax — GOLD RING.

Class E. CONFECTIONERS' PRIZE.

1. For the best comfits made from honey — CERTIFICATE.

The Society will hold its exhibition on the same day, and in conjunction with the Glasgow and West of Scotland Horticultural Society, at their September show.

All exhibitors will be subject to the rules and regulations of the Horticultural Society.

All articles intended for exhibition or competition must have a card attached, distinctly marked with class and number for which they are intended. If for exhibition only, must be so declared.

Entries must be made with the Secretary not later than the *1st day of September.*

Entry money (which must be paid at time of entry), one shilling for each exhibit.

All honey must be the *bona fide* property of the exhibitors, produced from their own apiaries, and to have been gathered by the bees in the natural way within the United Kingdom, and all to be the produce of 1875.

No prizes will be awarded where three lots have not been entered for competition, unless specially recommended by the judges.

Judges are empowered to withhold prizes if exhibits are not of a sufficiently meritorious character, or to award prizes for any appliances which may be exhibited, and are calculated to be of real service in the apiary.

A General Meeting of Members will be held in M'Innes' Hotel, Hutcheson Street, on 7th Sept., 1875, at 3 o'clock.

OUR WANT AND SALE COLUMN.

WANTS may be advertised at 2*d.* per line of eight words, for one insertion, renewable in succeeding months, for three months, without alteration, for half price. Replies must contain stamped directed envelope, or they will not be forwarded.

All monies must be deposited with the Editor, who will communicate with the vendor, when, if a sale be effected, one penny in the shilling will be charged on all amounts not exceeding one pound, and one halfpenny additional will be charged on every shilling beyond that amount, and the balance forwarded to the vendor.

Should no sale take place, the money deposited will be returned to the depositor, less a uniform charge of fourpence to cover postage.

The carriage of all articles sent, except such charges as are incurred in first placing them on a railway, must be paid for by the depositor, and if not equal to the description given, the advertiser must pay the cost of their return.

The postage of small articles, such as books, must be prepaid by the sender. The name of the town or country in which advertisers reside, and the name of their railway, should be mentioned as a guide to probable cost of carriage.

No advertisement must contain more than sixteen words. P. O. Orders to be made payable to C. N. ABBOTT, office of *British Bee Journal*, Hanwell, W., London.

—o—

No.		s.	d.
133	'The Management of Bees.' By Samuel Bagster. 244 pages and 40 illustrations. Post-free	6	0
136	Three hives of hybrid Italian bees, in boxes with glass windows on three sides—very healthy—with young queens of last summer, will travel any distance, Somersetshire, each	40	0
138	For Sale.—One or more strong stocks of pure Ligurian bees, in Woodbury frame hives, Dublin ... ... each	50	0
141	'Full and Plain Directions for the Management of Bees to the greatest Advantage.' By the old and able author, John Keys. Post free, in excellent preservation	7	6
143	One 10-frame hive, projecting ends to frames. one window with three glasses, outer cases, super-cover and roof, floor-boards, crown-boards, and quilt	25	0
145	Taylor's 'Manual of Bee-keeping'	2	6
147	One stock of hybrids, Ligurian mother, double-cased hive, with stand, roof, and cover. Leamington	55	0
150	Wanted.—Clean new straight worker comb—any quantity. J. F. Newland, Wandsworth Common.		
161	'The Female Monarchy.' By Rev. John Thorley, 1744, 206 pages	3	6
162	Huish on Bees, 1844	2	6
163	Murphey's Honey Extractor direct from the maker	70	0
165	Second-hand Cottage Woodbury hive (Symington's)	15	0
168	Forty queen-boxes, twopence each, or the lot ...	5	0
169	Octagon super, wood and glass, to hold 25 lbs.	5	0
170	Large 13-frame hive, with frames, Quinby size, double-cased front and back, with glass front and 2 division boards	15	0
172	Nucleus hive, with Cheshire's twin frames ...	4	0
175	Two Octagonal supers, to hold 25 lbs. each, wood and glass	10	0
176	Neighbour's improved Cottage hive, second-hand, minus the 3 bell-glasses	15	0

WANT AND SALE COLUMN—CONTINUED.

No.		s.	d.
177	Single frame unicomb hive, for exhibition purposes	7	6
180	Three Octagon boxes, each with glass window and shutter, to use on the storifying system	10	0
181	Large Octagon box with 3 windows and shutters, has been used as a nadir	5	0
182	A Major Munn hive with glass frame for observation purposes. Good as new, half-price ...	42	0
185	Indiarubber Gloves, cost 6*s.* 6*d.* last year ...	5	0
187	For Sale,—One 18-in. Pettigrew	3	6
188	,, One 20-in. ,, ...	4	0
189	,, Two 20-in. nearly new	5	0
190	,, One 18-in. ,, ...	2	0
191	,, One 18-in. Yates' hive, nearly new, with new eke	2	6
192	Wanted.—A large quantity of straight worker comb, Birmingham. State price, &c., to Editor.		
193	Three second-hand ekes, 18-in. diameter each	1	0
195	For Sale.—One of Neighbour's Improved Cottage Hives, minus bell-glasses	15	0
196	I will exchange a very good Unicomb hive, to hold six Woodbury frames, double glass each side; been used two years for two swarms of bees. O. Poole, Uphill, Weston-super-Mare.		
198	Guide-plates (4 × 1½ inches), fitted, with wooden screw-press complete, for making impressed wax sheets	10	0
199	Microscopy.—Willing to exchange first-class microscopic slides, &c., for good swarms. John H. Martin, Mount Pleasant, Tunbridge Road, Maidstone.		
200	For Sale.—A Manual of Bee-keeping, by John Hunter. (Postage 3*d.*)	1	9
201	A Cottage Woodbury Hive	15	0
202	An Eleven bar-frame Woodbury hive	7	6
203	Wanted.—Vol. I. of *Bee Journal*. Full price given.		
204	For Sale.—100 triangular cane guides for Woodbury frames. Require waxing and tacking on	0	8

Just out.

The 'British Bee-keeper's' Microscope.

A useful and popular Instrument, well adapted for all Microscopic purposes.

It consists of a firm Stand, with Brass Uprights, coarse and fine Adjustments to the Body; ¼-inch Achromatic Object Glass, dividing to ½ and 1-inch; Stand Condenser for opaque objects; Diaphragm; Life-box; Stage and Dissecting Forceps. Complete, in Mahogany Cabinet, £3 10*s.*

Brass Stand Microscope, of similar construction to the above, two Eye-pieces of different powers; ¼-inch Achromatic Object Glass, dividing to ½ and 1-inch; also a 1-inch wide Angle Object Glass, for large objects; Stand Condenser; Diaphragm; Stage and Dissecting Forceps. Complete, in Mahogany Cabinet, £4 4*s.*

Binocular Bodies, with Rack Adjustments, adapted to the above, extra.

Polariscope, and other apparatus, can also be fitted.

J. W. DEACON, Optician, High Street, Sydenham.

PHACELIA SEED.—Strongly recommended as Bee-pasture. See *British Bee Journal*, Vol. I. p. 199. Packets 1*s.* and 2*s.* 6*d.* each, free by post from W. R. UNDERWOOD, East Thurrock Rectory, Grays, Essex.

Should be sown in succession for the next three months.

THE

British Bee Journal,

AND BEE-KEEPER'S ADVISER.

[No. 28. Vol. III.] AUGUST, 1875. [Published Monthly.]

Editorial, Notices, &c.

AUGUST.

'Things are never so bad but they might have been worse,' and had there been a long drought instead of a protracted rainy season, there would have been far greater cause for dissatisfaction. In a time of drought everything suffers, crops are prevented, and famine is a direct consequence; and although the late incessant rains have greatly injured some of our harvests, it has been the immediate cause of increase in others: at least we have our cattle preserved, abundant root-crops will in some measure make up for the damage done to the hay, and the aftermath will be much greater than usual. 'There is a silver lining to every cloud;' and if we could only make up our minds to look at the other side of things we should often be less inclined to grumble. The hay and the bee (we do not mean to be funny) have been associated from time immemorial by the adage which, as generally accepted, says, a swarm of the latter in May is equal in money value to a whole load of the former; and although this is not fully believed in, we had hoped, by a different rendering, to reconcile it to fact by a suggestion that the weather which promotes the natural swarming of bees in that merry month is, as a rule, as beneficial to the farmer as an actual hay-crop. When the facts were observed which led to the establishment of the proverb, this deduction may have been reasonably correct, but now that bees are *understood*, their habits known, and their culture fostered, the proverb seems to have become disjointed and exceedingly difficult of reconcilement with facts; for under cultivation their 'natural swarming' is often *procured* many days, and even weeks, earlier than if left to their own instinct and abilities, would have been the case. On the other hand, the last part of the proverb, which declares 'A swarm in July to be not worth a fly,' is inconsistent in an inverse degree, for by proper management July swarms may be rendered exceedingly valuable as stock for the ensuing year. The multiplication of stocks is not, however, the object desired by bee-*keepers*; to them stocks alone are useless, but to bee-*dealers* their procurement is a satisfactory source of profit. The obtaining of HONEY is the great desire of the former, the pure, delicious nectar, which is so much more esteemed when procured by one's own bees, and that alone is sought by them.

During the month of July last year, those who had nursed their bees through the ungenial weather which had prevailed during the previous May and June were rewarded by a sudden inflow of honey such as had seldom before been experienced. In our own apiary a super of 74 lbs. weight net was completely filled in twenty-four days by one stock of bees; but during the past month our bees have not stored *one single ounce* of super honey, although many of their hives are bursting with life, and waiting only for the opportunity to gather, which, alas! at so late a period, and in a heatherless locality, we scarcely dare hope will be offered. From almost all parts of England, Ireland, and Wales, the cry is the same, 'Our bees are starving;' and in the neighbourhood of Manchester the honey prospects are deemed so cheerless that all further idea of the Bee and Honey Show, advertised to be held in connexion with the great exhibition of fruit and flowers in September next in that town of super celebrity, is unequivocally abandoned. A cheerful bee-keeping correspondent, who has begun to 'buy sugar by the cwt.,' while lamenting the untoward appearance of things, has humorously suggested the following as

Ye Trade Mark of ye Season.

and we think it not inappropriate.

In Scotland the prospects are much better, and heavy boxes for the Glasgow Show are confidently anticipated. Now considering the assistance rendered, and the great expense incurred, by our friends 'ayont the Tweed,' in tending to make our Association's first great Crystal Palace Show so marked a success, we trust some effort will be made by southern bee-keepers to show our appreciation of their good feeling, and that their Association's first exhibition at Glasgow may be enhanced by such a number of exhibits from England as shall thoroughly establish an *entente cordiale* between the two Associations.

Between such Associations there must be no unfriendly rivalry; let then each strive to support the other and thus prove our anxiety to promote the great object in view—the advancement of Bee-Culture.

THE CRYSTAL PALACE SHOW.

The Prize Fund given and promised for this second Show of the Association has now reached the sum of nearly £73, and only about £27 is now necessary to complete the amount required. For the last few days there has been a favourable change in the weather, and prospects are improving, so we hope there will yet be a goodly show. It must not be forgotten that many thousands of supers were obtained before the bad weather set in, and the knowledge of the late *scantiness* may, and we hope will, induce their owners to forward them for competition or sale. We hear of numerous improvements in hives and bee-furniture. The spirit of invention is moving many, and we trust the result will be satisfactory. In the meantime donations will be gratefully acknowledged by Mr. Hunter.

TAKING UP STOCKS.

Under this *heading* is too often meant the destruction of bees by sulphur fumes, but it is far from our intention to give any directions in aid of that barbarous custom, and we only use it that we may attract the attention of those who follow that inhuman practice. At the end of such a season as the present, with late swarms and scant forage, *taking up, breaking up,* or *putting down,* as the cruel method is variously styled, for the sake of the trifle of honey and wax which may be obtained, is simply suicidal, for thousands of stocks such as will be so treated will not yield one-third of their present money value. On the other hand, there will be many cottagers whose means will not allow them to invest in sugar sufficient to feed and save their famishing stocks; and unless they be rescued by those who can afford to buy and feed them, or who will charitably advance the necessary funds to establish them against the forthcoming winter, they will be most assuredly destroyed, on the principle that it is better to take the little there is, than by leaving them to lose all. Here is work for bee-clubs and other intelligent centres of bee-culture; could not the necessary funds be advanced to save so much valuable property, on the undertaking of the owner to repay in swarms in the ensuing spring? Such aid would afford much pleasure all round, and, rightly applied, would enlist the sympathies of the would-be Apicides, and open their eyes to the value of what they were about to throw away.

Such aid, however, to be of real service must not be too long delayed, certainly not later than the middle of September, or sooner if the honey yield ceases at an earlier period. Ten pounds of loaf sugar, costing little more than half-a-crown, would form fourteen pounds of the best bee food when boiled with about half its weight of water and a little vinegar, would save almost any stock reasonably strong in bees in September; and if for every two so saved one spring swarm were returned we think the investment would be a gratifying and safe one.

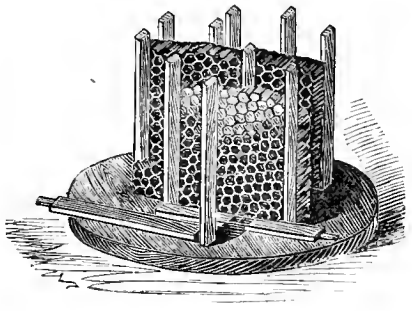
A USEFUL FUMIGATOR.

When fumigation is determined on for depriving bees of their honey, or from any other purpose, an excellent fumigator may be extemporised by aid of the kitchen bellows, a smallish flower-pot, and a piece of tin with some $\frac{1}{4}$-inch holes punched in it. The tin is to be fastened over the hole in the underside of the bellows, and the flower-pot loosely filled with dried puff-ball should be fixed over the tin. When all is ready an assistant applies a lighted match to the hole in the bottom of the flower-pot, whilst the operator steadily plies the bellows in the usual manner, and in a few seconds the fumes of the burning fungus will be pouring out of the nozzle which should be applied to the hive to be *quieted*. A very few puffs will be sufficient. This 'instrument' will be found useful for fumigating lights or small green-houses with tobacco fumes.

BROOD IN SUPERS.

In removing supers, brood is often found, sometimes in considerable quantities; and although as a rule it is sound policy to return such supers to their hives until the brood has been hatched out and the vacated cells filled with honey, there may be occasions, as in a

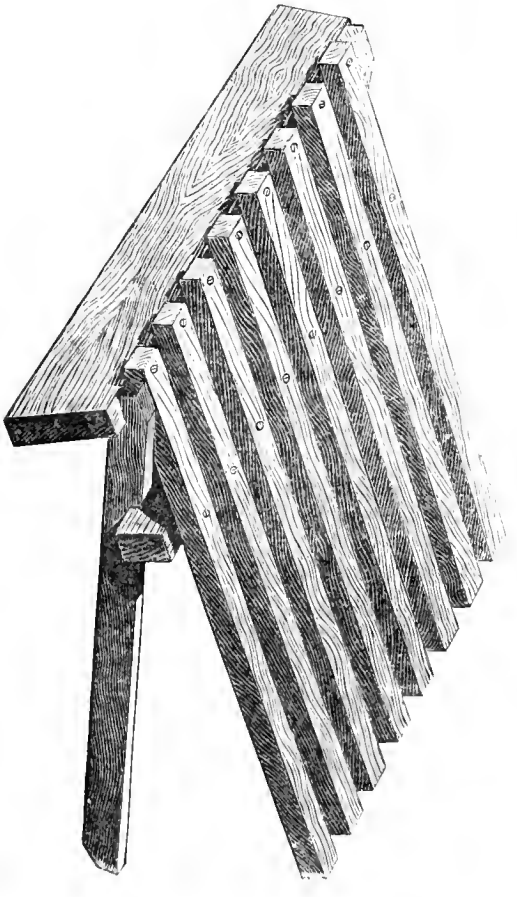
season like the present, when supers will be likely to become lighter instead of heavier by being allowed to remain on the hives. In such cases the worker brood should be carefully preserved, and to effect this very desirable end we have devised a board somewhat like that used in the game of solitaire where pegs are used instead of marbles. It has a central



hole 3 inches by 1, and is studded with ¼-inch holes placed in lines, one and a half inches apart (rather more than less), at right angles to the central hole. The intention is that the board shall stand over the centre of the hive, and the pieces of brood-comb placed upon it across its central hole being supported in their natural position by strips of wood like flat cedar pencils, of ½-inch width and suitable length, with points cut to fit into the ¼-inch holes. These '*pencils*' will keep the combs erect, and preserve the distance between them, and an empty bell glass, small skep, or wooden box placed over them will protect the combs and enable the bees to come up and hatch out the brood. This save-all will enable a careful bee-keeper to strengthen his weak stocks in autumn with the brood from condemned stocks, when otherwise it might often be thrown away.

TRANSFERRING.

There will be some at the end of the season who desire to follow the plan recommended by Mr. Pettigrew of depriving the hives and uniting the bees to other stocks, and others that of the late Mr. Pagden, of taking the honey from several stocks, uniting the bees into one hive, and feeding until they have filled it with combs; and in all these cases we think it a great pity that any of the combs should be crushed or injured, when by the aid of an Extractor they might be preserved for use by the bees, and much labour, and expense in feeding, saved. Many, however, there are who have not the means of obtaining an Extractor, and others who would not believe in, or use it if they had the opportunity, so the annual waste goes on, and comb, which cost from twenty to thirty shillings per pound to produce, is consigned to the melting-pot, and its owner is proud if he can obtain wax from it sufficiently good in colour to produce two shillings per pound. Whether the Pettigrew or the Pagden plan be adopted, there can be no excuse in either case for the wilful destruction of the parts of the comb containing brood, which is found in greater or less degree in all hives worthy of deprivation in September, nor for the waste of those parts which contain pollen only, neither of which can improve the quantity or quality of the drained, or squeezed-out honey. We have shown under the heading, 'brood in supers,' how small patches of brood may be saved without interfering with the interior of the hive, and now wish to show how a cheap transferring apparatus may be made by which larger portions of comb may be fitted to frames with the least possible damage or inconvenience.



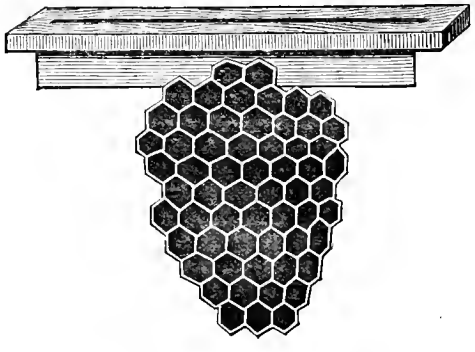
The apparatus is like that for which Mr. Cheshire obtained an extra prize at the Crystal Palace last year, but is much more simple in construction, and more easily made; and the engraving almost explains itself. Any number of strips of deal may be used for the platform on which the combs are to rest, but about eight are sufficient, these should be about 18 inches

long, and ¾ inches square, their ends being nailed or screwed about an inch apart on to the edge of a piece of deal about 4 inches wide, and ¾ thick, and of sufficient length to leave about an inch projecting on either side; a second piece of deal of similar length, and ¾ of an inch square, should then be fixed on the under side of the bars, about 5 or 6 inches from the former, two other pieces are then placed one on each side under and over the projecting ends of the cross-pieces, and either fixed by nails, or notched into them and tied, and the thing is complete. To catch the dripping honey, if there be any, a dish of suitable size should be put under the projecting teeth of the apparatus, and it is ready for use.

The merit of such an invention consists in its affording the means by which tape or fine wire may be passed round the combs without disturbing them, or injuring the brood, and of their being lifted to a perpendicular position before they are removed from it.

WAX-SHEETS.

Without wishing to impugn the veracity of any writer on the use of these aids to straight comb-building, we would ask such of our readers who have used the sheets of the full depth, viz. six to eight inches, to record their experience of them this side the Tweed. We have never used them of a greater depth than an inch, and in every case the bees have begun to build their combs along their bottom edges, and in some instances have not troubled to carry their cells up to the bar, but have left the whole weight of the combs depending by the wax-sheets alone. Some of our correspon-



dents complain that their combs have fallen into the hive through the wax-sheets giving way, and others have assured us that the big sheets become '*baggy*' and useless, by the weight and heat of the bees clustering upon them. In our supers when the bees have begun to work, their combs are in every instance as shown in above engraving.

BEES AT THE SOUTH LINCOLNSHIRE HORTICULTURAL SOCIETY'S SHOW AND GALA.

At length we are enabled to record the welcome fact that bees and bee-manipulation have been admitted amongst the attractions of a great provincial Horticultural Society's Show, and to Grantham is due the honour of inaugurating this great and significant innovation.

Grantham is already celebrated as having given his education to the illustrious Sir Isaac Newton at its free grammar-school, prior to his entrance at Trinity College, Cambridge; and in memory of the great fact a statue of the wonderful philosopher is erected there, and forms a conspicuous object in the principal thoroughfare of the clean and wholesome town in front of the schools mentioned. Grantham is notable also in bee-literature as possessing a public-house with '*a living Sign*,' which, with '*a lofty Steeple*,' are made the subjects of invitation to explore the wonders of the hostelrie. It appears, traditionally, that a swarm of bees took possession of the sign-post of this ancient house of call, and the novelty was so great and attractive that they were hived and allowed to remain there, proper protection having been afforded them. It is not pretended that the bees now there are the lineal descendants of the first examples of industry ever found attached to a public-house, for in reply to our query the good-natured landlady assured us that they seldom took them up, *i.e.* smothered them for their sweets, thereby admitting that sometimes the sign did not exist. At the present time it is located in a young lime-tree of about ten years' growth, the stem of the tree being encased in wood, forming a square pedestal from the top of which at right angles is a beam reaching across the path and into the house-front, and underneath the beam is suspended a swinging board bearing these words,—

Stop, Traveller, this wondrous Sign explore,
And say, when thou hast viewed it o'er and o'er,
'Now, Grantham, now, two rarities are thine,
A lofty Steeple and a living Sign.'

To be *in character* the skep in which the bees exist is covered with a small barrel, and the whole protected with a bell-shaped canvas awning, almost the whole of which at this season is hidden by the foliage of the tree. To show that the *wonderment* was not universally shared, a wag has inscribed within the house the following unpoetical couplet,—

Oh, Grantham, ye have little to boast,
For it's only a bee-hive stuck on a post.

Our purpose, however, is not to describe Grantham, nor can we spare more than a passing remark that the fruit, flowers, and shrubs

which were brought together were surpassingly beautiful, and filled many a long and wide tent, delighting all beholders: our *penchant* is for the bees, which we were happy to aid in bringing before the notice of the visitors.

The credit of this introduction of bees and bee-manipulation to provincial shows is due entirely to Mr. R. R. Godfrey, of Watergate, who, like a true pioneer, felt his way, and cleared the ground of all obstructions, leaving not even the fear of a sting to rankle in the minds of the Society's Committee; eventually permission was obtained, and Mr. Godfrey requested, what we were only too willing to give, viz. all the aid we could possibly afford to make the Bee exhibition as telling as possible. The Show was held in the cricket-field, the pavilion of which, an open-fronted building about sixty feet long, was devoted to the bee auditory; and to prevent the possibility of stings, the open front was covered with strong black net, which was sufficiently transparent to permit a full view of the proceedings. The bee arena was about sixty feet square, and was enclosed by a walling of canvas similar to that forming the walls of tents, and in this space the performance went on for two whole afternoons, without one of the thousands of outsiders having to complain of a single assault by the bees.

In the pavilion were arranged several glass unicomb hives, containing living specimens of purest Ligurian bees, the queen, the workers, and the drones, with their eggs and brood in all stages of development. Some choice specimens of comb, showing the beginning and gradual extension of their formation, the wonderful arrangement of the bases of the cells, and the ingenious contrivances for impressing wax-sheets in imitation of them; one comb was especially interesting, as it contained fourteen queen-cells, from eight of which princesses had hatched, and had been saved by us during the previous week by repeated examinations of the hive. In the arena a second edition of the Crystal Palace manipulations was gone through; driving, both open and close, finding queens, transferring combs from straw skeps to bar-frame hives, extracting honey by the machine, and dozens of odd tricks to show the mastery man may obtain over these reputedly vicious insects. The bees operated on were principally supplied by Mr. Brett of Grantham, a worthy seconder of Mr. Godfrey in the effort to bring about a better state of bee-keeping in their neighbourhood.

The first day of the Show was set apart for members of the Association and their friends, and on payment of five shillings; and as may be supposed, the attendance was somewhat limited, but the Bee exhibition had always a crowded audience, having been visited by the Mayor and Mayoress, and all the *élite* of the neighbourhood. The second day, however, brought 'the crush,' and so great was it, that although late in the day one penny each was charged for admission, the pavilion continued full, and more than five pounds were taken at the doors. Such interest was taken in the affair, and so fully were the public impressed with the experiments, that everything exhibited in the shape of a bar-frame hive was eagerly bought up,—ours, Neighbour's, Hale's, Carr' Stewartons, many of Aston's bee and drone traps, the Bligh quieter, and indeed some of the spare unicomb hives, so great was the anxiety to do something in the way of bee *management*.

To Fairfax Moresby White, Esq., the Hon. Sec. of the Association, O. Yateman, Esq., the courteous manager, and T. Lynn, Esq., the equally courteous working Secretary, great praise is due for the excellent arrangements and good order which prevailed. Our efforts in exhibiting were admirably seconded on both days by the veteran bee-master, J. G. Desborough, Esq., of Stamford, and on the second day by the Rev. D. W. Pennell, of Boston, who scented the battle afar off, and volunteered their services; and most ably did they, with the indefatigable Mr. Godfrey, explain to the admiring and interested crowds the various operations as they proceeded, and their labours greatly conduced to the wonderful success of the exhibition.

So great was the interest created, that hearing some operations were to take place in Mr. Godfrey's apiary on the day following a garden party to witness them was the result, and some more converts made to the improved system of bee-culture.

Now that a beginning has been made, and it has been proved that bees can be exhibited in the open air *without danger to the public*, we hope to see exhibitions of bee-manipulation at every important Horticultural and Agricultural meeting. The *Grantham Journal*, in its report of the meeting, says:—

'One very interesting feature remains to be noticed —the highly instructive experiments which Mr. C. N. Abbott, of Hanwell, the celebrated bee-master, conducted for the benefit and edification of the public. Visitors viewed these experiments from the pavilion, a small space in front of which had been enclosed, and large numbers each day were both astonished and amused. We believe we are correct in saying this was the first horticultural show at which Mr. Abbott has given his services for the advancement of bee-culture, but from the very evident appreciation of the public we should not be surprised if it were to become a special feature on such occasions. Mr. Abbott is master of his profession, and his experience and acquaintance with

the habits and life of bees render his opinions valuable, and entitled to full credence.'

The following more detailed account is also given in the *Grantham Journal*:—

THE MANAGEMENT AND CULTURE OF BEES.

'In our report of the Horticultural Show and Gala, we have noticed the fact that Mr. C. N. Abbott, bee-master, of Hanwell, gave some very interesting and instructive experiments on the ground during both days. It may, perhaps, be well to notice more particularly what these experiments comprised. Mr. Abbott showed in the most simple manner his mode of artificial swarming, a grand achievement, the value of which cannot well be over-estimated. By this method the skilful bee-keeper not only secures the swarm without the trouble of watching, but also prevents a great waste of time on the part of the bees at a period when they should be most active. He showed the transfer of old stocks from straw skeps to the bar-frame hive, and the mode of taking surplus honey, at the same time preserving all brood-comb, also empty comb which is afterwards fixed in the bar-frame, and placed with the bees in the new hive. His manipulation or handling of the bees showed a complete mastery over the little creatures, frequently taking the queen-bee, which he secured to the back of his hand by means of a small thread tied round her majesty's waist and drawn between his fingers, and then allowing a number of attendant bees to swarm around her. Drumming or driving was another feature; by this, the honey may be taken and the brood-comb preserved and returned to the hive, without destroying the bees. Beautiful specimens of comb were shown, taken from the bar-frame hive, with the various stages of brood-comb of the drone, the worker, and the queen-bee, from the egg just deposited to the young bee eating its way out of its prison-house. A remarkable thing was seen on a frame of comb in a unicomb hive. Having no queen, the bees at once set to work to raise the queen-cells, proving that although a colony may be deprived of its queen, the bees, as quickly as nature allows them, bring out another. A common idea is, that if a colony is deprived of its ruler they at once migrate. Simple, but none the less complete, is the construction of Mr. Abbott's hives, as every one who took the trouble to examine them would readily testify. The whole colony can be inspected in a few minutes without the least trouble, and its condition in every respect seen to, which is a very essential provision, for bees, like other created things, are liable to various forms of disease. Wax-moth and other destructive intruders may also creep in, and unless at once turned out soon ruin a whole hive. Mr. Abbott, we should say, had the kind assistance of the Rev. Mr. Pennell, of Boston, and J. G. Desborough, Esq., of Stamford. For the edification of some persons it may be added that there was no 'trickery' whatever in Mr. Abbott's illustrations; he had never seen the bees before he came here, and everything he did was plain and straightforward. There is one thing, however, worthy of mention—Mr. Abbott is 'sting-proof;' he uses no preparation to 'dress' his hands or face, as some may have supposed, but, nevertheless, the sting of a bee affects him no more than the bite of a fly. The illustrations and experiments were throughout of a most entertaining character, and those who have a special interest in bee-culture might learn therefrom very much to take advantage of.'

BEES AT THE DIDSBURY SHOW.

At the Horticultural Show at Didsbury, five miles from Manchester, under the secretaryship of J. B. Stringer, Esq., prizes were offered for bees and honey, and there were some few articles of bee-gear which we had the pleasure of forwarding by invite to aid in creating an interest. The first prize for bees was carried off by the veteran exhibitor, W. Carr, Esq., of Newton Heath, with some beautiful Ligurians, in one of his Observatory hives. J. Beresford, of Denton, being second. The first prize for honey was gained by W. W. Cook, Esq., of Denton, and the second by O. Forrest, Esq., of Barlow Moor. Some of our 'exhibits' caused a great deal of curiosity, some of them being quite puzzling to the uninitiated. We hope no similar meetings will be allowed to be held without an effort being made by some energetic bee-keeper to introduce bees to the notice of the visitors. We shall always be willing to help if within range.

BEES AT HESTON FLOWER SHOW.

This was a purely local show, and took place on the 14th ult., in the spacious half-hardy conservatories at Osterley House, by the kind permission of her Grace the Dowager Duchess of Cleveland, now resident there. A prize was offered for honey, which was gained by Mr. W. Ellingham, of Heston, with a nicely-filled super. Some articles sent by us in aid of the show, including three Unicomb Observatory hives filled with Ligurian bees and brood, attracted considerable attention. The day was unfortunately one of unceasing down-pour, and consequently the show was rather thinly attended.

Superstition about Bees in Somerset.—A curious superstition exists in some parts of Somerset that it is very unlucky when a swarm of bees alight on dead wood; and when they do, it is a sign of death. Happily, however, these absurd notions are fast dying out, and a more rational system of bee-keeping taking the place of the old.

A Hint to Advertisers.—A Somersetshire correspondent complains that he was unable to reply to two advertisements in our last issue, although he wished to do so, in consequence of the advertisers not giving their full postal addresses.

TO CORRESPONDENTS, By One of Them.

Write upon pages of a single size,
Cross all you t's, and neatly dot your i's;
On one side only let your lines be seen—
Both sides filled up announce a Verdant Green.
Correct, yes, re-correct, all that you write,
And let your ink be black, your paper white;
For spongy foolscap of a muddy blue
Betrays a mind of the same dismal hue.
Punctuate carefully, for on this score
Nothing proclaims the practised writer more.
Then send it off, and, lest it merit lack,
Inclose the postage-stamps to send it back;
But first pay all the postage on it too,
For editors look black on 'two-pence due,'
And murmur as they run the effusion o'er,
'A shabby fellow, and a wretched bore!'

Correspondence.

*** These columns are open to Subscribers, so that their queries, replies, correspondence, and experiences, may be* fully *and* faithfully *recorded: and for the discussion of all theories and systems in Bee-culture, and of the relative merits of all hives and appurtenances, that the truth regarding them may be ascertained. The Editor, therefore, must not be expected to coincide with all the views expressed by the various writers. All Correspondence is addressed to the Editor.*

SUGGESTIONS FOR THE COMING SHOW.

Though so long an absentee from your columns I have been neither uninterested in your welfare nor unobservant of your progress, and I must congratulate you most heartily on the advancement that has been made in apiculture during the past year, mainly through your instrumentality. I do not lose sight of the interest that was created by the Crystal Palace Show, nor the spread of apicultural knowledge that was bound to be the result of all that was to be seen and learned there; but going back to first causes I credit *you* with all that; knowing as I do that it originated with you to hold a show and also to form an association into whose hands you placed the Prize Fund, collected through the influence of the *British Bee Journal;* therefore, although the details were principally carried out by others, it is you, and you alone, that we have to thank for our British Bee-keepers' Association and for our annual shows at the Crystal Palace. There seems to exist with some few a very evident desire to ignore these facts and to take to themselves the credit of so successful an enterprise, but 'honour to whom honour is due' is a good old motto and must not be lost sight of.

I have once more taken up my pen, in the interests of the coming show, and if by pointing out any of the defects in the management of the one in 1874 I can hinder a repetition, my object will be served and I shall be rewarded for my trouble.

There is no doubt that we, as a committee, last year made the duty of the judges a very difficult one by the manner in which we worded the conditions attached to many of the classes, and the committee for the present year appear to me to have copied our error. I allude more particularly to the great use that is made of the word 'best' in the Schedule, and think that the judges would have much less difficulty in giving their decision in many of the classes if the following alterations were made.—*See* June *Journal*, p. 38.

In class 5 leave out 'best,' and say 'for the cheapest and most complete.'

In class 6 abolish the same word, and say 'for the cheapest and most serviceable.'

In class 7 how are the judges to decide which is the 'best' species merely from looking at them? Why not say the most distinct variety, or the handsomest, or the largest, or any other qualification that they *could* decide upon then and there?

In classes 9, 10, 11, 12, 14, and 15, substitute 'largest' for 'best.'

In class 16 leave out 'best.'

In classes 17 and 18 substitute 'largest' for 'best.'

More particularly in the classes devoted to honey is the qualification 'best' most difficult to deal with, for who is to say what interpretation the committee wish to be put upon it? Would the largest be considered the best in supers, or would those containing the finest quality of honey? or again, would the shape or make of the super be a qualification? If the largest? say so. If the finest quality of honey? say so. If the beauty of the super? say so: and the judges will then at once be able to adjudge the prize with little fear of having their judgment brought into question, as it was in far too many instances last year.

I need not carry that subject further to illustrate my meaning, but will proceed to other matters. Last year many of the judges were competitors, and, strange to say, the majority of them obtained prizes. Now there can be no harm in the judges being exhibitors, but they *ought not* to be *competitors;* the more especially if, as was the case last year, each has placed in his hands before commencing his duties a catalogue *with the name of every exhibitor attached to his exhibit.* There ought not to be the slightest clue given the judges as to the ownership of exhibits; and were I judge I would disqualify any article exhibited to which the owner had either attached his name or any other means of identification.

I myself am thoroughly satisfied that the judges did their duty without fear or favour, and have never questioned their decision in any case, although individually I suffered, from what I believe was an oversight on their part; and I am anxious only that there should not be *any* opportunity given this year for the kind of remarks that, unfortunately, one had to listen to during the three days' exhibition in 1874, and to this end it is very necessary that as *little as possible* be left to the judges to be decided upon as a mere matter of opinion.

Should there be an exhibition of bee manipulation, &c., the committee should issue a programme of the various operations to be performed, the hour at which each will take place, and the name of the operator, by this means the public will know what to see and when to see it. An explanatory lecture during the operations would also be a great desideratum.

Last year there was a great gathering of all the notables among modern bee-masters, and yet the opportunity of personally discussing the many topics of interest was entirely lost sight of. The evenings of the first and second day might be devoted to debate upon any of the vexed questions in apicultural matters, which would, I am sure, prove both interesting and instructive to all who attended. Here, however, again there must be system, as it would be useless to call together a lot of people, as was the case at the Conversazione, unless a programme of proceedings for the evening were first compiled and afterwards acted upon. I have no doubt but many of our brethren learned in apiculture would be willing each to name a subject for discussion, and come to the meeting prepared, when called upon by the chairman, to open the proceeding in each case by giving the views he entertained upon the particular subject he had chosen.

These, sir, are my suggestions, and I hope that,

meaning offence to none, none will be taken. It is my earnest desire that the show of 1875 should eclipse that of 1874, and be a credit alike to its promoters and to the British Bee-keepers' Association, and to that end, and to that only, have I written.

In conclusion, I should like to mention three matters that have come under my notice, and which as yet no one has publicly remarked upon. The first is, Mr. Pettigrew's remark on Foul Brood in *Journal of Horticulture*, June 17, in which he distinctly asserts that the bees do not convey the contagion from one hive to another. A more erroneous statement was never made, and unless contradicted would lead into the mire those who believed in it.

The next is, the four-legged bee with which Mr. Hunter illustrates his *Manual*. Are these the ones we may expect to see in class 7?

And the last is, Mr. Cheshire's ingenious waxing gauge illustrated in *The Country* of July 15, which if he had ever tried to use before recommending it to others, would no doubt have been accompanied by a mathematical demonstration of how to draw through a $1\frac{1}{8}$ inch aperture, a bar $1\frac{3}{8}$ inches wide. Really this is too good.—R. Symington.

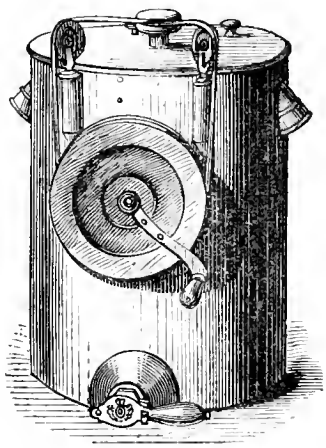
WALTON'S EXTRACTOR.

Just a line to say that I went over to Weston the other day, and bought Mr. Walton's Cottage Extractor, and that after a fair trial I find it does its work perfectly.

It empties two combs as speedily as his large extractor, and its cheapness will bring it within reach of a great many cottagers, to whom I can thoroughly recommend it. The lime harvest here has been a very poor one, though there are more than 300 fine trees full of blossom within very easy reach of my bees. But the weather has been so unfavourable, and the nights so cold, that they have again, as last year, stored all below and refused to go up into bell-glasses.

The Extractor therefore has been an immense help to me. My Ligurians are decidedly improving.—J. W., *Rugby Road, Leamington.*

[We present our readers with an engraving from a photograph of the Extractor. We have not seen the machine, but believe it is a counterpart of that shown at the Crystal Palace last year—minus the wooden framework.—Ed.]



THE PROPOSED MANCHESTER SHOW.

As the weather in this district has been so unfavourable for honey-gathering—there is no prospect of having a good show early in September—therefore the committee have resolved to abandon the idea of a Bee and Honey Show in Manchester for this year. —T. Bagshaw.

DISTANCE GAUGES.—HIVE SHAPE.

I am much obliged to the Editor for inserting my few remarks in the last number of the *Bee Journal*. They were written hurriedly and under the press of business, and were not worthy of the courteous reception they met with.

Notwithstanding, I am still of the same mind respecting the distance between the centres of the combs. That is, I maintain that for breeding purposes 1 in. 6-20ths is the best for the common English black bee. Of course, for honey-combs, for drone-cells, and for supers, a greater distance is required. I have made many experiments upon the subject, and in company with another gentleman have entered upon it with considerable care. The 3-20ths of an inch may appear a slight matter, but I am convinced that in the brood-combs it makes the difference of many thousand young bees in the course of a season. If the distance is greater than I state, I find that there is a tendency to lay up too much honey and leave too little space for brood, or, worse still, to build too many-drone combs, which is a waste of time. I am now wishing to make no converts, but simply stating the results of my own experience. I acknowledge Mr. Woodbury as one to whom bee-keepers are under the deepest obligation; but his unnatural and extraordinary theories respecting the sexes of the eggs of the queen, which I and others have over and over again disproved by experiment, show that he is not to be taken as an infallible guide.*

With regard to the shape of the hives which I have adopted I will say a few words. I said last time that I thought 10 inches the best distance from front to rear. To test the matter, I had a hive made containing the same cubical area as a 14-inch Woodbury, only of the distance I name from front to rear, but of proportionately greater length from side to side, that is to say, my hive was about 21 inches long by 10 wide. I now obtained two artificial swarms of the same size and weight, and on the same day, and placed them in the hives, which were left in similar positions. At the end of last season the bees in my hive weighed about 60 lbs.—deducting hive, &c. The other was barely 25 lbs.!—but wait a bit. At the end of May this year, my own hive weighed about 50 lbs., had swarmed, had filled a super, and contained one mass of bees. The other was not

* We sincerely trust our esteemed correspondent will oblige us, and our scientific readers generally, with some account of the experiments alluded to. We will not claim for the late deeply-lamented Mr. Woodbury *infallibility*, but knowing his experiments to have been conducted with the greatest care, and himself imbued with a high order of intelligence, we have been willing to accept his conclusions, and have always considered him an authority; nevertheless, if any new facts can be brought forward, we shall be only too glad to give them publicity.—Ed.

nearly full of bees, and did not weigh 20 lbs. The swarms were taken on June 1st, 1874. The two hives are open to inspection at any time. I do not see any reason for the difference unless it is in the shape of the hive.

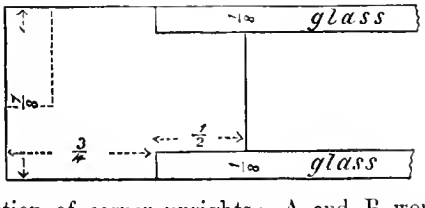
The hives I have always used till lately, and which are still my principal hives, are 14 inches from front to back, 18 inches from side to side, and 6 inches deep. I adopted this shape before I used frames, and I adopt it still. I find it well adapted for most purposes, but bees are apt to build crooked combs in it, as they are in all hives with a considerable distance from front to back. I should like to send a specimen of these hives, but have not the opportunity. If any maker is willing to produce one, I shall be glad to give him all particulars and to describe the minor details which go to make bee-keeping a luxury and of which I have introduced several.

Do not think I am egotistical, Mr. Editor; I am merely feeling after light, like yourself, and am wishful to add my quota to the general fund. I should have been able to give additional results, but this season has been such an unfortunate one for bee-masters. In all parts of the country which I have visited, the account is most melancholy. Even as I write, the limes are flowering in rain; my bees will not move out of their hives on account of the heavy rain and constant thundery state of the atmosphere which appears to depress them. Not one out of thirty hives has gained a single pound weight since the 1st of June, nearly all have decreased. One hive, a large double hive and super containing over 4000 cubic inches weighed on May 20th 175 lbs. It is now reduced to 51 lbs. True it has sent forth two swarms, but that is not sufficient to account for so great a decrease. Swarms that came off on the 1st and 2nd June have barely half filled their hives, and weigh—nothing. Unless the weather changes before the limes have finished flowering, it will be an expensive job to keep my bees alive. I this morning visited a cottager, a most intelligent man, who has fifteen or sixteen skeps. The bees are extremely strong, clustering in great bunches outside the hives, which, however, are empty of honey. This person reckoned that if he took all the hives he had, he would not obtain two pounds of honey.—A CARDIFF BEE-MASTER, *July* 20, 1875.

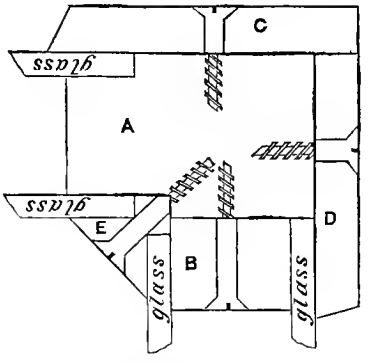
GLASS HIVES.

As you express a wish for details of my glass hives, here they are:—

Section of top and bottom bars.—The dotted lines show the rebate taken out of front and back to receive ends of frames.



Section of corner uprights; A and B would be better of one piece, but I made them in two, so as only to require one thickness of stuff, viz. inch (cut 2) which is $\frac{1}{8}$ thick when planed, C and D are fillets to keep the glasses in their places, and E is to keep the inner glasses in. In putting in the



glass put the convex side against the wood, the screws will then draw it close up, it will give enough without breaking. The sizes of glass required will be; length, the same as the inside of the hive, width the depth of the hive minus $1\frac{1}{2}$ inches. My crown-boards I make in sections of 3 inches wide, and across I put two bars screwed down to the body of the hive with thumb-screws, (the same, only smaller, as are used for house-shutters) these are much easier to remove than ordinary screws and require no screwdriver. I fix the hives to the floor-boards by the same means. I found this necessary to prevent the warping of the floor-boards. I am already tired of glass hives, and am making some with double wood sides for the winter. I find I can see very little of the interior through the glass; and while the bees have any of the inside frames to work at they won't work on those next the glass. I subdivided my hives according to the number of queen-cells in spite of your advice to the contrary, and find the queens have hatched out. I thought it would be as well to get as much brood as five queens could rear * by winter instead of the produce of only three; and when the time comes I shall ask your advice whether to winter each queen with its stock or destroy one or two and unite the stocks. I have fed for a few days, but now there is such an abundance of food I have stopped it. I am glad you approve of my suggestion for monthly meetings of the Association. —F. L. *Clapham.*

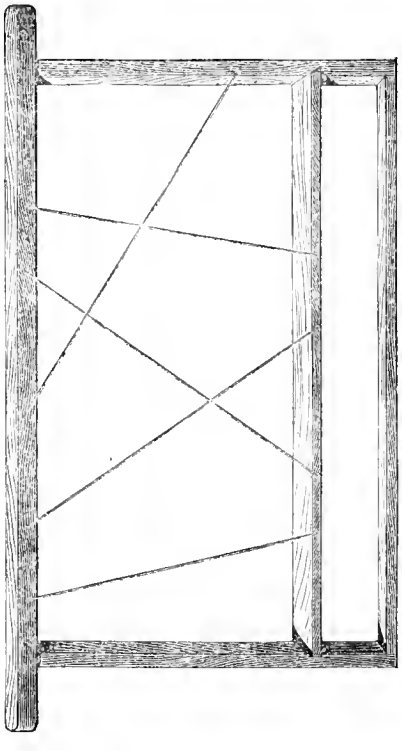
REMOVING BEES TO THE MOORS.

Your correspondent 'Prestonkirk,' on page 53, wishes for information how to remove bees safely to the moors for the heather harvest; and as numbers of your other subscribers want the same information, so I do not think I can do better than send you a copy of an article I wrote for the

* Five queens in a subdivided stock, forming five small colonies, would not rear more brood than each of the small lots of bees could attend to. The principle is a wrong one, and entirely against the golden rule in bee-keeping, 'Keep all your stocks strong.' Small colonies with all the summer before them may, if it be favourable, work up into good stocks by autumn, but division of stocks to increase breeding at this time of year is a mistake, and not likely to be successful.—ED.

Field newspaper of July 26th, 1862, and the *Journal of Horticulture* of July 21st, and September 1st, 1863, as these articles saved the lives of thousands of bees in removing them to the moors.

'As the time has now arrived for removing bees to the heather, I wish to remind your readers of the very great advantage a hive taken to the heather has over one that cannot be taken there. It gives the bees a *second honey-harvest*, as I find my bees not taken to the moors always lose weight after July. The heather at this time is just coming into bloom, so no time should be lost in sending the hives, and if the weather is favourable in August, the quantity of honey collected is immense, so that the bees should have *plenty of room* given to them before they are sent to the moors, or when they arrive there.



'I will now give your readers a few directions for removing their bees to the heather. The night before they are removed, raise the hive from the floor-board by putting a piece of one-inch wood under the front, and early next morning I find every bee has gone off the floor-board into the hive. I spread a piece of net or leno on a board, and lift the hive upon it, and tie the net very securely with two strings round the hive, and when so fastened I turn the hive gently upside down, and place it on a cloth, and tie the corners together, so that the hive is easily carried by suspending it by this cloth on a pole across the cart; but it matters very little if suspended or not, as the combs will not break down, the hive being turned bottom upwards. The bees by that means obtain plenty of air, do not melt the combs with their great heat (being excited), and I do not find the honey run out of those cells that are now sealed over. Care should be taken in turning the hive bottom upwards, to lift the front or entrance up first, as bees generally build their combs from front to back, so the weight of the honey-combs rests on the back side of the hive, which support it, but if the hive filled with new combs, and honey, is turned over sideways of the comb, they are almost certain to break down or bend with their own weight, and the bees upon them.

'I let the bees remain at the moors until about the middle of September, and when brought home I put them upon the scales, and the next day I deprive them of their surplus store (leaving the bees, combs, and honey 22lbs. weight, which insures their preservation until the next summer); this I consider a proper return from these grateful creatures for my kindness in having given them a change of air in such luxuriant pastures, where many tons of honey are annually lost to the nation from the want of collectors.'—William Carr, *Clayton Bridge Apiary, near Manchester.*

Note.—The above in conjunction with our directions in reply to query 116, p. 178, Vol. 2, No. 22, cannot be improved upon, except by extracting the honey from movable combs a day or two beforehand, and staying the combs in frames by tapes, or wires turned down at each end (see engraving in previous column), and driven into the frames across the combs as suggested under the heading, 'Taking up Stocks' on p. 60.

(*To be Continued.*)

CORNISH BEE-KEEPING.

Cornish bee-keeping is in some respects quite a curiosity; bad bee-keeping I have seen in other places, but nothing that quite came up to what I have seen here; and if the British Bee keepers' Association wish to start a series of lectures to dispel the darkness that now enshrouds bee-keeping, there is a fine field of operations in the county of Cornwall. That there is ample scope for the exercise of bee-keeping on scientific principles with every prospect of success admits of no doubt in my own mind, large portions of the country consisting of unreclaimed land covered with furze and heath; in this parish about one half is waste land; the remainder being principally laid down in grass with plenty of white clover intermixed; the great drawback, however, is the dampness of the climate. At present, in this part at least, though large numbers of bees are kept, the old wasteful policy of suffocating the bees is universally adopted; consequently the cottagers think the more swarms the better, as then there are so many more colonies to be stifled; and to obtain plenty of swarms they use very small hives.

The ignorance existing on the subject of bees is at once amusing and sad. I had a long talk with one farmer on the subject of bee-keeping, but in spite of all I could urge to the contrary, he persisted in sticking to the idea that there was no better plan than the old one of killing the bees; he had another extraordinary idea, viz., that new honey would not keep, and if honey was wanted to be kept more than a few weeks it must be taken from stocks at least two years old. Another farmer, and one who I should consider to be one of the shrewdest

and best educated in the parish, said the more he knew of bees the more he found out that those who wrote books on bee-keeping knew nothing about bees. Fancy that, O ye shades of Virgil and Huber, besides a host of other worthies. I can almost imagine such an one would feel as much pleasure in excavating a huge sulphur-pit for scientific apiarians as he does when annually slaughtering his bees. The same farmer openly expressed his disbelief in the existence of the queen, because he said he had kept bees for thirty years and had never seen one. I took him one at the earliest opportunity, but I am not at all sure that even then he was quite convinced. But Cornish bees sometimes want feeding, and here there are two ways of achieving the end desired, one being to strew some sugar on the floor of the hive, but there is another delicacy which they are accustomed to offer the bees, and that is, a salted pilchard!

In case any reader of the *Bee Journal* wishes to offer his bees such tempting food and cannot obtain pilchards, I have no doubt a red-herring would answer equally well.

Instead of floor-boards turf is universally used here, which in winter becomes saturated with moisture. Of course under the treatment I have described numbers of stocks perish; the present season, unless we have a change, will, I fancy, be especially fatal, constant wind and rain having prevented the bees from gathering any honey.—D. D. B. *Carnmenellis, Redruth.*

OLD-FASHIONED BEE-KEEPING.

The very entertaining article under the above heading in a late number of our *Journal* has contributed, in no slight degree, to the edification of my apiarian friends; although, at the same time, it is a grave matter of doubt whether they will derive any great advantage from the perusal. It reads very like a page from that valuable work on apiculture by 'that great husbandman of Cornwall, old Mr. Carew, of Anthony.' The marvellous results obtained by your contributor, Mr. Editor, were, I am inclined to believe, in some measure due to the 'bell, book, and white sheet' used in capturing the 'vagrant swarm.' Pity a candle was not included, as it would have invested the proceedings with a due solemnity well befitting the occasion. A sublime idea that—to hive bees by bell, book, and candle! and without going too far, I may safely venture to recommend it to the careful attention of Messrs. Newdegate and Whalley, and to others of that ilk. It would be interesting to know whether the honey was not of a delicious aroma and flavour from the *food* which the wise man in his wisdom so considerately administered. The results of that individual's experience would be eminently interesting were he to embody his ideas in the form of a book. It is also worth knowing in what way the food was given to the bees, though I believe I shall not be far wrong if I pronounce it to have been chicken one week, crow the next—just by way of variety, you know. Shade of Huber!—Alfred Rusbridge. *June* 14.

BIRMINGHAM BEE-KEEPING.

Although living in Birmingham, with at least three hundred tall chimneys pouring out their volumes of smoke within half-a-mile of our house, and brick-kilns stationed round almost like so many batteries to prevent our getting even a taste of fresh air, whichever way the wind may be, I pursue, as I have done for years—though until lately under far more favourable circumstances—the study of 'our little favourites.'

Surely this is bee-keeping under disadvantage; but as I go in for *pleasure*, and not for profit, I do not mind. I have heard it stated, and I can certainly vouch for the truth of it here, that one can tell whether there is much smoke in a district by the blackness of the holes by which the bees enter their hives: mine get as black as ink in about three months, the bees bring it on their feet from the flowers. But changing the subject, Mr. Editor, I have always found very great inconvenience in manipulating bar-frame hives where you allow the bees to build above the bars. One instance is this, in moving a frame you want lateral room, *i. e.* for pushing the frame you intend to move clear of the others, else, unless the comb be perfectly straight, you not only stand a very great chance of breaking it, but also of unnecessarily annoying and irritating the bees, and so raising the whole colony into an uproar. The plan I adopt for obviating this, is by fixing a sheet of glass in one of the outer frames. This will prevent the bees from building on that one, and so it can at any time be easily withdrawn; it will then give plenty of room for pushing the frames apart, and so facilitate the operation of taking them out.

But I have no doubt that you, Mr. Editor, have adopted this, or perhaps a better plan; but as I have reaped the advantage of it in my apiary, I mention this fact *pro bono publico*.—Ernest Booker Hill, *The Vicarage, S. Andrew's, Birmingham, June* 15.

[We have adopted a moveable dummy-frame which can be lifted from the hive without disturbing a single bee, and can be set aside during manipulation. The idea of a dummy is not new; but the form which we have adopted *has* a spice of originality about it, and we feel that it will some day be generally adopted.—Ed.]

PERFORATED ZINC.

I must acknowledge that I am at a loss to account for the death of so many bees in the super as related by 'A Warwickshire Bee-keeper.' Had he followed out the directions given, and allowed the zinc to cover the whole of the bottom of the super, I do not think he would have had cause to regret the use of it. I apprehend the bees found in the super died in the ordinary course of nature, and that their death is not in any way to be attributed to the zinc. I have never had such a case happen in my apiary, although I should be rather chary in using it over 1½ inch holes, because four of them would contain 144 apertures, only which, I suppose, would be scarcely enough for a large super. A piece 14½ inches square, or large enough to cover a Woodbury hive, contains 3969 holes, and allowing only five bees to get through per minute, a large

swarm would very quickly find their way back to the stock hive. The other day, as an experiment, I filled the combs in a bell-glass with syrup, placed a piece of the zinc over the 2-inch feeding-hole, and allowed the bees to come up through. It being miserably wet weather, the bees were glad with this little addition to their stores, and soon found the glass and emptied it of its stores, and by the next morning, every bee had gone down into the hive, and not a dead one to be seen. Perhaps your correspondent's bees might have been chilled, and falling on the zinc, made prisoners of their companions. It is, I acknowledge, more difficult for a bee to remove a dead comrade through the $\frac{5}{24}$ aperture, than it would be through a long, narrow slit; but I doubt very much if a slit can be cut that will admit a worker, and exclude the queen, and then there is more danger attending warping. Why could there not be an entrance cut in the super to be opened occasionally for the removal of the dead bees? I have never had occasion to use it myself with supers, although I have with collateral hives.

I have been using the zinc, in conjunction with several friends, for several years past, and I still maintain that for keeping the queen out of the super, it stands unsurpassed; and, I may add, that for three successive years I have taken the first prize for supers at our local Horticultural Exhibitions worked upon the zinc. It is now four or five years since I first brought it under the notice of the bee-keeping public in the *Journal of Horticulture*, offering then, as I have in the *British Bee Journal*, to supply any apiarian with a small piece for pattern. At that time I only received three applications, but since my little paragraph in the June Number of the *Journal*, I have supplied nearly one hundred applicants with a small piece for pattern, so that I hope it will be well tried during the next season.

Amongst the many testimonials I have received, I select the following from a gentleman of Oxford:—'I am glad to say that the bees have taken to the super at last; but the weather has been so bad and wet, that they could not have done anything had they gone up before. Had the weather been good, I feel sure I should have had a score or more pounds of honey by this time. I am very pleased with the zinc, which I put on the whole size of the hive, and covered the part the super did not with a piece of board.'—O. Poole.

ABNORMAL BEES.

Many thanks for your reply and explanation of the 'Slaughter of the Innocents,' which I think is likely to be correct.

Enclosed I send you three different specimens of bees, great numbers of which are being daily thrown dead out of a swarm of Ligurians hived about 15th May last.

Numbers 1 and 2 seem to be abnormal bees, and unfit for any sort of work, at least I have never seen them flying home to the hive with a load of pollen or honey. They seem merely to hang about the entrance and eat up what the others gather, which line of conduct the regular worker bees appear to object to, as they throw them out of the hive in immense numbers, the ground in front being literally covered with their dead bodies.

Whether the worker bees kill them as being useless mouths to feed, or that from some malformation they die a little time after coming into existence, I cannot say.

Number 3 is a specimen of the worker bees that are being at present hatched, but they are totally different from the pretty yellow bees of which the swarm was originally composed.

There must be something wrong with the hive, as up to the present it is only half filled with comb, though the swarm was hived two months ago.—W. J. Wilson.

[There have been many cases of this kind lately brought to our notice, and we regret exceedingly that we can offer no better advice than the exchange of the queens, which we believe to be in fault. A correspondent to the *American Bee Journal* some time ago said that the bees were little because they were starved by the older bees' food being refused them, and they being driven out of the hive; but this we do not believe, as such treatment would not make the difference in their colour and general appearance, which is so manifest. We have known one case where these abnormal bees were bred for some weeks, and immediately slaughtered, but eventually bees of the normal type were again produced, the queen having, as we surmised, recovered from the 'infirmity' under which she had been suffering.—Ed.]

STING POISON.

Having been stung several times this season, after which I have felt some very curious sensations, I wish to know if you or any brother amateurs have experienced the like; also the reason, and if it can be immediately relieved.

About three minutes after being stung, I felt a slight cramp, especially in my fingers, which was followed by a prickly sensation all over, after which a fearful hitching commences; the skin rises up in small white blisters, the rest of the skin is a glowing red, just as if I had been rolled into a bed of nettles, my head feels full of blood, lips tight, voice husky, severe pains in throat, which is swelled up, and I look as if I had been crying for a week. All this goes off in about an hour, with slight shiverings and faintness. I cannot understand why it should fly over the whole body while at other times the sting is confined to the locality in which it happens to be. I shall be very glad to hear of any remedy, as it is very likely to occur again, which is not very pleasant.—W. Gee, *Wollaston, Nantwich, June* 26.

[The cause of your extraordinary sensations was the being stung upon a vein, so that the sting-poison was at once conveyed into the circulation. An ordinary sting is simply irritating to the part stung and its immediate surroundings, the poison becomes gradually absorbed, the pain ceases, and the swelling goes down. When the poison is at once injected into the blood, it produces a spasm of greater or less intensity, and if the patient cannot throw it off it destroys life. In your case the virus and its effects were driven out through the skin and a speedy recovery took place. The best remedy is a strong dose of spirit of sal volatile, swallowed as quickly

as possible, to be repeated in a few minutes. We knew a case of a lady who was stung on the left temple, and she immediately fell to the ground in a state of suffocation, the muscles of the chest being so contracted that she could not breathe. A dose of sal-volatile threw off the poison by the skin, which assumed a nettle-rash appearance, and she recovered.—Ed.]

A HINT.

The sale of honey at the great Bee and Honey Show last year was not so brisk as expected. Will you allow me, Mr. Editor, to hint to my brother apiarians that it would be a good plan if they could exhibit some samples of run honey, together with a few well-filled boxes at their local horticultural shows? Such places are always frequented by those who can afford to buy summer extracted honey, and the exhibits would doubtless attract the attention of all to the improved method of keeping bees. A ready sale of honey would no doubt be the result, thus paying the exhibitor, and the many questions as to how the results were obtained would give him an opportunity of recommending the Association and our *Journal* especially, and the Council would gladly supply to each person who wished to show some schedules of prizes and prospectuses for distribution among the visitors. This, perhaps, would be one of the best ways of getting fresh members for the Association and of swelling the prize subscription list for the forthcoming show. If you will insert these few remarks in our next *Journal* you will oblige—A Hampshire Bee-Keeper.

TELESCOPIC SUPERS.

I have read with much pleasure your *British Bee Journal* since its commencement, and have noticed articles and letters upon almost every sort of hives, and mode of getting honey, some of which I agree with, but think some of the modes suggested for getting large quantities of honey very difficult to manage, and as such most likely to end in disappointment. In the interesting pages of your *Journal*, I have failed to see any description of the telescopic principle of supers, which in my humble opinion is the best and most easily worked kind of super, producing in good seasons very large quantities of beautiful honey in virgin comb, sometimes as much as 60 or 70 lbs., from an ordinary cottage hive, which can be taken from these adjusting or telescopic supers without destroying a bee, and leaving plenty of food in the stock-hives for the consumption of the interesting occupants.

These supers are very easily made, and any carpenter can, with little expense, knock together several in a short time. I give the dimensions of those I use, but larger or smaller will do equally well. The supers are made of ½-inch deal wood, and measure outside 17½ inches square, by 14½ inches deep, with a wood top but no bottom, on a ledge are fitted 8 bars 1½ inches wide, and placed ½ inch apart, and on these are placed pieces of guide comb, the two centre ones, being put sufficiently long, say about 4 inches, so as to attract the bees to commence their operations. This box super is made, so as to slide easily over a piece of square wood, with a round hole of about 6 inches in the centre, which is fitted by means of cement to the top of the hive, and so becomes a fixture there, and then the super can be raised or lowered at pleasure, without moving the square piece of wood: of course there is a hole cut in the top of the hive on which the piece of wood fits, and the size of the telescopic super given will suit equally well, with a Woodbury hive. At first the super is raised only about 4 inches, and as soon as the bees have filled the space, it is then raised an inch or two at a time, so that its occupants have only a short distance to take their stores of honey, and by gradually increasing their space to deposit their stores, you keep the bees constantly at work, and if the season be at all favourable, in all probability its inhabitants will fill the whole super, which has been gradually raised until they have the full 14 inches. In my supers I have four windows about 10 by 6 inches, with hinged doors, so as to see when to raise the super.

I am aware that these supers I have attempted to describe are not new and have been used before, but I think that few know the great value of them, and as the *British Bee Journal* circulates so largely, I hope my remarks may induce others to try what I have found to be a great success. I may mention that I put one of my supers on an ordinary cottage hive of English bees on May 26, and already I should think there are about 20 lbs. of honey in it.—R. H. Stuart, *Park Grange, Edgbaston, June* 26.

BEE-KEEPING.

The cottagers who now smother the bees of the straw-skeps should be made aware how cruel and barbarous a practice it is to murder their hard workers in cold blood. To this purpose, I would propose that the Society for Preventing Cruelty to Animals be applied to, to appoint somebody their representative who will undertake to save the lives of bees in his neighbourhood, a matter of such little trouble and so much pleasure. Besides, if the public once properly understands how to manage and how to save the poor creatures, and the advantages which arise out of such saving of life to the cottagers, all would gladly enter into it the following year, but they must be taught it this season. For the poor bees' sake particularly, and for the cottagers' sake, let me again tell them how I proceed. Every body ought to know how to drive a hive, and full particulars can be read on page 60 of the *Manuals for the Many, Beekeeping*, by the late F. H. Payne, Esq., price 4*d*., which should be largely circulated. Place the full hive upon its crown, that is, wrong way up, and the empty hive on the top of it, place a towel around the two hives where they join and beat the old or lower hive with your hand for ten or fifteen minutes, when all the bees will have gone up into the empty hive. Then place this new or empty hive which has the bees in it, upon the old stand, and proceed to operate upon the comb and the honey of the old hive as you like.

I have a word in reserve for the more educated beekeeper, and am delighted to find in the July number already on page 56, 'Answer to a Novice,'

what I would have referred to, but this is only intended for the cottager's instruction, mingled with the hope of preventing cruelty. The cottager generally saves half the number of his hives for wintering; the bees, which he now has after driving them into the empty hive, I want him to join to his old stocks again—so easy a matter.

Let him take a hive he intends to winter, with the sufficient weight of honey in it to last till spring, and operate upon it in the same way. Drive all its bees also into another empty hive, same as described above. This hive, with the comb and honey undisturbed, replace upon its own stand to allow the bees which are about to return to it; then take the two empty hives, each of which contains the bees only, spread a towel or sheet upon the ground and place the (to be wintered) hive on one end of it, raising it slightly upon stones on the side facing the sheet to allow the bees to go in. Take the first driven hive and knock all the bees out upon the sheet, or spoon them out with a big spoon and let them run into the hive after you have done two things which are of the greatest consequence. Firstly, *pick the queen out, and detain or destroy her*; secondly, sprinkle the bees as they go into the hive with some scented sweets, say peppermint and sugar and water, to give them a new scent and smell, which they take with them into the hive and scent the combs as they crawl upon them. Then do exactly the same with the second hive, but do not take the queen out; she goes in with the rest back again into her own hive, but sprinkle all these bees likewise with peppermint and sugar, or honey and water, and replace them on the stand from which the hive was taken, and scarcely a bee will be hurt. They form a grand colony for winter, are able to secure more warmth, and all the bees will return to it if they find their winter store of honey to live upon.

All cottagers cannot be taught this in a season. I instructed a good many and will attend to see them do it properly; others I offer to take their bees simply, but if they won't see their advantage to save the bees' lives, I carry them away with me, a grand prize for myself; and I will tell you, for the more educated beekeepers now, what I shall do with these. In this way I shall get about from 100 to 120 stocks. Out of every two of these I shall make a new colony as shown above, and take the bare hives with a double stock of bees to the heather. The difficulty is not *to burn* and *smother* them on the journey. I live opposite the R. R. station, and take them to a station 57 miles from here, depositing them within 300 yards of that station. The Railway Company supplies me with a guard's van to be attached to the mail train, which saves first the shaking which the hives would get if I took them by waggon-loads on the road; secondly, in time I should be ten hours or more on my way there, now I shall get in three hours or less. I intend to take thirty-two boxes already filled with comb in the frames, and about thirty hives all without comb in them. The former will be slipped after removing the lid and replacing with perforated zinc, the latter crown downwards tied up with farmhouse milk cloth, which is very airy. My boxes stand upon three bricks which is all required for them, and the hives on the top of the latter, both being covered with an old bag to keep rain off. I leave about August 12, and intend to fetch my bees back in September.—John G. Kirsten, *Bridlington, Yorks.*

THE GRANTHAM SHOW.

Allow me to make a few remarks about the Bee Exhibition held in connexion with the Grantham Horticultural Show, so ably conducted by you. Being amongst the public nearly all day, I heard most of their opinions about the articles on view and the operations performed. Those of the spectators that were not bee-keepers could only admire the wonderful ease and skill with which you went through the (to them) dangerous—because not understood—operations of driving and transferring, and your entire disregard of the bees' most powerful weapon. The bee-keeping part of them, that go on the old smotheration system, were almost as ignorant as the others, and consequently nearly as much surprised as they; but all, with an exception or two who were determined to be disbelievers, were satisfied of the necessity of adopting the improved system of bee-keeping so ably set forth. And then the observatory hives were great attractions, especially the tenanted ones; the other hives were minutely examined by the initiated, and after the explanation of the advantages, and practical operations with the same kind of hive inhabited, the majority were convinced of their practical utility. Then the Extractor was a never-ending source of admiration, and the ease with which the luscious store could be extracted was a most convincing proof of its efficiency, and received its due meed of praise. But the chief attraction was the driving and transferring, &c., and there the greatest amount of interest centred, and as the operations were thoroughly successful, they were entirely appreciated. From all points of view the Show was an immense success. The spirit of inquiry amongst bee-keepers in the vicinity is thoroughly aroused, and forms a favourable contrast to the apathy that before existed; and it is to be hoped the opportunity for utilising this interest for the advancement of bee-culture will not be allowed to pass away unused.

And now, Mr. Editor, I must close: complimenting you on the skill you have attained in bee-management, and hoping that the lucid manner in which you so obligingly set forth the advantages of the improved system of bee-keeping at the Grantham Show, may stimulate others to attempt to attain successfully a somewhat similar result.—T. Roberts, *Belvoir, Grantham, July* 23.

BEE EXHIBITIONS AT HORTICULTURAL SHOWS.

Mr. C. N. Abbott's visit to Grantham, and his exhibition in bee management, given at the Horticultural Show held on the 6th and 7th of July, proved a complete success. The intense interest which the throng of visitors manifested in this novel exhibition, fully confirms the opinion in which I have for a long time indulged, that such exhibitions would be the most effectual way of spreading bee-culture

amongst all classes; and I shall be pleased if the British Bee-keepers' Association will favourably consider the importance of such exhibitions, and so further that which may now be fairly looked upon as having established a footing. This I would venture to suggest might be done by their appointing a thoroughly practical man who should attend Horticultural Shows when desired, for the sole purpose of giving such exhibitions as we have been favoured with at Grantham.—R. R. Godfrey, *Grantham*.

A QUEEN AND HER SUBJECTS LAID LOW.

Under the shade of Belvoir Castle, in the charming little village of Knipton, on Tuesday, the 20th July, stood a noble elm, but on the following morning it succumbed to the woodman's axe, when the remarkable fact of a swarm of bees located in a large hollow part of the tree was discovered. Fortunately her majesty's fall was but temporary, as into more loyal hands she could not have fallen, for she was very quickly extricated from the perilous position in which she had been placed, and no time was lost in providing a suitable palace into which she was, with due honour, conducted, and so re-established. No fighting took place, the loyalists having learned a lesson of love from our Editor at his recent exhibition of bees at the Grantham Horticultural Show.—G. R. R.

YOUNG QUEENS.

Can you, or any of your readers, explain the following:—On the 30th of May I hived a Ligurian swarm, which I put into one of Abbott's Frame-bar hives, and on inspecting the same about three weeks later I found four worker-combs built and nearly filled with brood, and a fifth of drone-comb in course of construction. I at once observed the cause of the latter, there being about a dozen sealed queen-cells, and no queen in the hive. On again examining them on the 24th of July I found nearly the whole of seven combs (Nos. 6 and 7 being entirely worker and only partly built) filled with brood in all stages of development. I was both astonished and delighted at the fecundity of my young queen, but I was surprised to find that about 300 cells in one of the worker-combs had received drone eggs, and had been elongated in consequence. I am sure they were drones, as I watched two or three creep out of their prison, and several downy ones that had evidently just hatched, while none of the worker sealed-cells showed any signs of hatching. These young ones were the only drones in the hive, and they were smaller than drones usually are. According to my view of the case the young queen must have laid those eggs ere she contracted a matrimonial alliance. Was this so?—C. J. S., *Stroud, Gloucester*.

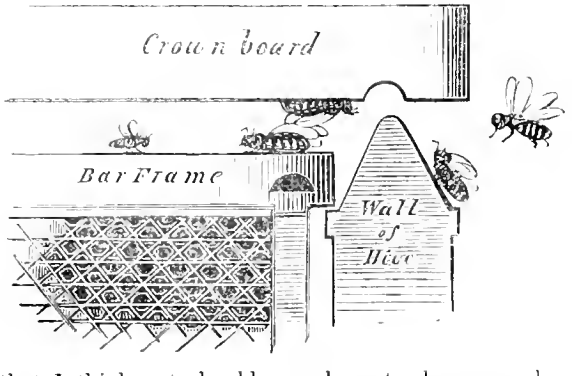
[It was either as you suggest, or the young queen may have commenced laying drone eggs after the matrimonial flight, and then been stopped by the weather. Many cases have been known where valuable young queens have commenced by laying drone eggs, but we have never known them come first to maturity.—Ed.]

HIVE CONSTRUCTION—SAVING BEE LIFE.

The poignant distress which all our sympathisers feel whenever a bee is needlessly murdered, makes me hope that plans will be devised to spare our feelings, as well as the lives of our pets, by arrangements which shall preclude all bee-icide whatever.

Working with Woodburys, I have felt the anguish of having to let down the crown-board or adapting-board upon my dear winged friends. Every examination of the hive, however tenderly careful, results in the death of some, who get crushed by the replacing of their roof; and now we have got rid of the abominable notches which caused jarring disturbance, it seems to me we must improve the methods of replacing crown-boards, so as to preclude the cruel crushing of a single bee.

My proposal is to have the top edge of the stock hive narrowed to a ridge a quarter of an inch wide or narrower, which, being slightly rounded off, should coincide with a groove in the crown-boards, as it is chiefly in the broad flat top of the hive walls that the crushing takes place. This need cause no extra expense, and would not only save many lives, but would ensure a close fit at the top, where it is so necessary to have security, and would permit damp or wet to drip clear of the junction. Not



that I think wet should ever have to do any such thing in a well-kept apiary. My hives are provided with covers of felt drugget and stair oil-cloth, which secures dryness all the winter. During super-time this is not of so much consequence, as the external temperature is high, and any wet gets soon dried. What damages our darlings is the long-continued soak of the autumn after the honey harvest.

I send a section sketch of my proposal, and should be glad to hear the opinions of brother bee-keepers on the plan.

When this point has been settled, and the quilt theory perfected, so as to *secure* infallibly straight comb, we shall, I think, have the wise insect completely under control. Please observe a notch in the bar end to lift it by.—Llyswen.

BEES OUT FOR A PIC-NIC.

I have no doubt that the method of administering food to the bees as you described in the July Number of the *British Bee Journal* answers, especially during this unfavourable weather, when we

have had a few fine days at long intervals, insomuch that the weight of the hives and supers in the apiary would rise considerably, as long as the tree bearing these artificial blossoms continued to bloom. But before introducing it into an apiary, one is obliged to pause in order to ask oneself several questions, the most important of which I shall try and answer.

(1.) Having supers on most of the stocks in an apiary, would it be right to feed the bees in this manner?

I should think it would not; for if supers were being filled, the bees would be sure to store away the greater part of the food in the supers, and in this case it *could* not be disposed of as honey-comb, as the comb would be partly filled with syrup, and partly with honey.

(2.) If a bee-keeper treated his bees to a pic-nic, would he be allowed to compete for prizes at the Crystal Palace Bee and Honey Show in the Classes from 8 to 19?

Again, I should think he would not; for in the Schedule of Prizes for this year there is a stipulation made which runs as follows:—'All honey and comb exhibited in the above classes must be *bonâ fide* the produce of 1875, and gathered by the bees in the natural way in the United Kingdom.' In the first place, the honey would not be '*bonâ fide* the produce of 1875,' because it would not be entirely honey, but partly syrup; and in the second place it would not be 'gathered by the bees in the natural way,' but by an artificial manner.

I should think that if there was any stock in an apiary that was in want of food, it would be fairer to supply that stock alone with food, and not give the bees the chance of storing it in the supers.—Wm. N. Griffin, *Alphington, Exeter, July* 19, 1875.

[We quite agree with the writer—feeding under any circumstances to cause supers to be filled for exhibition purposes is a dishonest proceeding; and feeding with sugar-syrup to create supers for sale is equally reprehensible: but neither of these malpractices is intended in our hint under the above heading, we were thinking of our own home apiary of seventy stocks, almost all full of bees to overflowing, yet with scarcely an attempt even at *comb-building*, and not a single ounce of honey in any of the supers. 'If supers were being filled' a pic-nic would not be necessary.—Ed.]

THE WEATHER—WAX-SHEETS—EXTRACTOR.

You doubtless know the old saying,—

'Saturday's change and Sunday's full moon,
If it comes once in seven years, it comes once too soon;'

and we have had thirteen wet days this month, and three inches of rain has fallen. It has been very cold too, my registering thermometer has gone down to 37° two nights last week. I am afraid we shall have but a poor season. I have had rather a curious illustration of the value of wax-sheets. I placed some frames in the central portion of a large hive (one between two full frames) prepared with wax-sheets about one and a half inches deep. The bees commenced building on the lower edge, and went downwards, without carrying their combs up to the bar. The consequence was that as soon as the comb got about six inches square, and brood in it, the whole fabrication fell down *en masse*, the wax-sheet not being strong enough to support it. I have not used wax-sheets much, and shall do less, for I think nothing comes up to a line of wax on the under side of the bar put on with a brush, and struck along with a gauge. I should like you to send me one of those little steel gauges when you get them ready.

I have been trying my hand at extracting, a neighbour having kindly lent me his machine. I find that it is very useful after you have made an artificial swarm. The bees in the old stock, during the time the young queen is coming forward, fill up the brood nest with honey as fast as the brood hatches out, so that by the time the young queen should begin to lay, there are no empty cells for her. When I found mine had commenced laying, I removed two or three frames from the centre of the hive, and emptied them of the honey; and as the weather has been so wet, gave it back to them through two holes of the vulcanite feeder, and now the hives are nearly *filled* with brood.—J. Clevere Jones.

THE LAUREATE'S BEE-LORE.

Our readers will be interested in knowing that the Poet Laureate is a student of our own particular branch of natural history. In his recently published drama *Queen Mary* (Act iii. scene 3), they will find the following reference to bees:—

'They say that bees,
If any creeping life invade their hive
Too gross to be thrust out, will build him round,
And bind him in from harming to their combs.'

Then follows an admirably-turned comparison much to the detriment of some of the queen's courtiers.

TRANSFERRING EGGS FROM ONE COMB TO ANOTHER.

On page 11, 'W. Bassano, Haden Cross, Old Hill,' gives a very plausible and interesting account of the above phenomenon, and, perhaps, believes exactly as he describes; but before accepting it as a substantiated fact, it may be as well to consider if no other agent than the bees was at work (not transferring eggs, but depositing them) inside the hive. The question of a queen or queens in a hive is sometimes perplexing, and it very often happens that supposed queenless hives do really possess a queen; besides, it is a very common occurrence for two queens to be in a hive at the same time. One or two instances of this may be worth mentioning. During the autumn of 1872 I supplied a friend with an Italian queen, who joined it, as he supposed, to a queenless stock; having previously dethroned the reigning queen, substituting the alien one which was well received, the following spring, however, revealed a singular state of matters, because not only were young Italian bees appearing, but chance young black ones and an occasional black drone. The hive, however, was not a thriving one, and it often underwent an examining process. On one of these occasions the two queens

were observed in the hive, and a slight combat took place between them. After this it was an object of curiosity to see the two queens, and even to have a fight, which they always did, but in a very mild way. How long they might have remained together, had they not been killed, is difficult to say. The owner one day with an assistant was determined to despatch her black ladyship and let the Italian reign supreme; he did manage to kill the black one, but, unfortunately, at the same time the Italian was killed also, and in this way. The Italian queen, during manipulation, had descended along with some of its workers to the floor-board, and when replacing the hive she was killed with the edge of the hive. No doubt the black queen had been an effete one, and, I believe, under these circumstances little jealousy exists either with the workers or fertile queen. Within the past few years I have had many cases where two queens were in one hive for some months; the following case, however, will be sufficient to quote at present:—

In the month of July 1874, two swarms were joined, and both young fertilised queens remained in the one hive until the end of March of this year, thus living for nearly nine months together. As some of the readers of this may doubt, I may explain that the day this queen was dethroned was extremely cold; there was no possibility of this queen belonging to another hive, as there was not a queenless stock in the locality, nor was it a young queen, because I took the precaution of making a post-mortem examination, and found her in every way perfect, her spermatheca bag being well charged and eggs in the ovary, and, further, the hive in question is now on the point of swarming. Now, without going into the details of what the unobservant would take for anomalies when, in point of fact, it was only the regular course of things under peculiar circumstances, let me only ask the intelligent in such matters to consider well what might have happened in such hives. For example, the queen of a hive was killed, and here it was lying dead upon the floor-board, newly dead; what was more reasonable than to suppose the hive was rendered queenless (as it was in this case), and a very proper step and a common one was to examine the hive when we found brood but no queen-cells raising; after a lapse of time eggs are offered to it, but these are removed. The bee-keeper finds eggs regularly placed in another comb, and concludes the eggs were transferred, when it was only the work of a recognised regnant queen; but, quite possible, she may not be now what she once was, a perfectly healthy queen, probably having been maimed in the contest for the throne; her egg-laying powers with the health of her body have been impaired, and the bees, dissatisfied, may dethrone her too. A piece of comb containing eggs may at this point be given them; the strange eggs are removed, which is far oftener done than is generally supposed, and eggs are found in other parts, and queen-cells are being formed, and the eggs they contain are being treated for the future queen, which, I doubt not, may be taken by the ignorant in such matters to be transferred eggs.

But under different circumstances from the foregoing, eggs are found in a hive that has no queen, but which contains what is improperly called fertile workers, when said term ought to have been *imperfect queens*. Hives contain these egg-laying anomalies far oftener than is supposed, and hives that possess a queen that has some defect are seldom without them, and they invariably commence to lay eggs shortly after birth, and in proportion and regularity to their nearness of perfection, and are laid indiscriminately in worker and drone-cells alike, capable only, however, of being transformed into drones, and although oftener reared in a drone-cell and fed with the royal jelly comes forth a drone only. Hives containing such queens cannot be depended on; in some instances the eggs are found regularly placed in the cells, others only a straggling egg here and there, as I have already stated, according to their nearness of perfection to a fertilised queen. In the former case the bees seem more pleased and will not raise a queen, but in the latter a queen may be raised; but she is at all times a very uncertain one and unlikely to be retained in a hive. The presence of an imperfect queen, or bees that are aged, makes it a very hazardous affair to introduce either queen-cells or a queen. For success with these, always choose the bees that are young. There are many things occur in a hive that are difficult to explain, but when cause and effect are traced things become more intelligible; and it is strange to see a hive with plenty of brood and larvæ refuse to raise a queen or form a queen-cell where eggs are, but will persist in raising upwards of fifty queen-cells on the combs containing no brood; and although this was done no eggs were transferred, they had the power to do so, and yet they will attempt to raise a queen from the egg of a *fertile worker*, and at the same time neglect healthy and perfect eggs from a perfect queen. Under this abnormal state of things bees acquire a decided cannibalistic taste, and eat any perfect eggs that may be presented them. Although bees remove eggs, they do not transfer them from cell to cell. At least I have never seen it, although I have (I may so with safety) experimented a hundred times for this purpose alone, but never once saw an egg transferred; but have often seen eggs appearing in a hive where no queen was: and as two queens are often tolerated in one hive, it is just as likely that two or more fertile workers will exist at the same time in the same hive.

Nature has designed that the queen, and she only, shall be capable of fixing and depositing the eggs, not only on the bottom of the cell, but sometimes upon the side of it; but there appears to be no difference in the evolution of the former or the latter, but in the event of raising a queen, the bees are as likely to choose a cell with the egg on the side as when it is placed on the bottom; and under these circumstances. Those who choose to make assertions without having ocular demonstration may be deceived by not observing the egg until it has been hatched, and so attribute it to the transferring of eggs by the workers—by the way, these are not capable of transferring and fixing eggs; their mandibles are the only means they have for conveyance, and their construction is not such as to deal tenderly with anything that they may take hold of.

Notwithstanding what I have stated in the foregoing, I am open to conviction should I be wrong. But the evidence, before I am so, must be from men

who have studied and watched the habits of bees, and not from those who make assertions merely through conjecture, and who never noted bees in other than straw and darkened hives. At present I am supported not only by my own observations and experiments to find out this very question in dispute for a period of over a quarter of century, but by many of the ablest writers and observers in bee matters, not only in this country but on the Continent. Among the former I am supported by Mr. J. Lowe, who has made this a special study, and with hives that afford him the greatest facilities for doing so; and also 'A Renfrewshire Bee-keeper,' whose knowledge in bee matters is indisputable. I hope that gentlemen who have made it their special study to solve the problems of the honey-bee will give their evidence what they have seen, and if ever they saw eggs transferred by bees. Difficult as the honey-bee is to solve, it is far more so to me why those who have experimented with observatory hives so long to find if the bees transferred eggs, failed to notice a single instance, and yet it is asserted to be the case by those who use straw hives only. The former is the wonder, and the latter the doubt of—A Lanarkshire Bee-keeper.

FREAKS OF BEES.

I am afraid you are too gallant to differ with a lady, hence in the first page of the July number of our *Bee Journal* you write, 'Mrs. Tupper says very truly *that bees do nothing invariably*.' But I find in the same number, on page 54, '*Bees invariably take with them*,' &c.

I believe they do *something* invariably, at the same time they have extraordinary freaks. For instance: I had a splendid hive of Ligurians, in one of your excellent frame-hives, upon which I placed a super and had the pleasure in a few days of seeing the bees hard at work; but having gone from home on the Saturday evening I found on my return on the Monday the bees had swarmed. A neighbour managed to hive them, and on the following day the same hive sent out another swarm, and on the following day a third. I then examined the stock the next day, and found immediately in front of the stand four dead queens, but no queen in the hive; at the same time I saw the hive had a tremendous lot of drones and comparatively few bees, the super being entirely deserted. There were several queen-cells. To-day I again examined the hive and had the pleasure of seeing a beautiful queen quite contentedly walking amongst her subjects. Is my chance of getting the super filled entirely gone? What ought I to do in the case? Every comb in the stock-hive has more or less honey in the cells, but no brood excepting a few drones.

I have a slinger, and intend, if fine to-morrow, to sling a few combs. I find very great difficulty in getting my bees to work in supers even when full of bees, although I start them with pieces of comb.

The third swarm before mentioned settled on the leads of a bay window, and then crawled through a crevice and got under the leads. Two days afterwards I got a plumber who took up the leads and boards of the window, and found they (the bees) had built four pieces of comb about six inches square. I need hardly say it was no easy matter to get the bees hived, because no sooner was one board taken up than they took refuge under another; ultimately I determined to search out the queen, and after a full hour's search I caught sight of her, but only for a moment, as she skulked off through a crevice in the board, and I had another long search. However, my patience was at last rewarded by another sight of her. I at once seized her by a wing and put her into a hive, and then one by one put in about 100 or 150 bees into the hive through a small opening. I then raised the hive a little, presently a bee alighted at the raised edge of the hive, made a peculiar sound, and immediately those about a foot distant took up the note and turned their heads towards the hive and walked in like a regiment of soldiers, as bees *invariably* do when they find the queen is within.

Is it not one of the failings of the Ligurian bees to swarm when we want them to make honey? I had not the heart to kill the queens of my three swarms and return the bees to the hive. It does strike me that black bees have not so strong an inclination to swarm, and therefore where honey is wanted the preference might reasonably be claimed for them. I hardly think the argument is *altogether* sound that because the Ligurians *breed* faster, they must necessarily be better honey-storers. I should like to see a well-arranged competition between the two kinds, but the conditions would require to be as accurate as possible, viz., two young queens, same number of bees, same pasture, same kind of hive; and I fancy even then a single trial would not suffice as some queens of each kind are more prolific than others.

Mr. Pettigrew writes—the exact words I have not before me—that he saw his bees going in with honey and pollen in large quantities. How is this? I can only see the pollen on the legs of mine; I should like to see the honey. Has he got hold of an *Inquisitor?*

I see one of your correspondents regrets that you do not give us a separate treatise on bee-management: I believe the regret is universal amongst your readers. A thoroughly good book is needed, and I think it is a duty you owe to the public that you should satisfy the craving. You, above all others, have implanted in us a thirst for more knowledge on the subject, and it is a positive wrong to leave us to fish out here and there for information; and however ready you may be to reply to our many queries which our ignorance may suggest, yet I assure you it is a great task for some of us to take up a pen after a hard day's work.

I have a notion that bees work best in a common straw-hive, but still I dislike them. I have three straw ones, and five wood frame-hives. In the straw I am at a loss to know when to feed, no facilities for feeding, nor do I know what brood there is, whilst I have perfect control over the wood frame-hives, therefore the advantage so far as pleasure goes, to say nothing of durability, is decidedly on the side of the wood frame-hives.—Inquirer, *Middlesborough*, *July* 2, 1875.

ECHOES FROM GERMANY.

BY A COUNTRY DOCTOR.

The Division and Subsequent Reunion of Stocks.

By Herr Gravenhorst.

Every bee-keeper who is only moderately observant knows that however pleasant swarming may be sometimes, under certain circumstances it only takes place to his disadvantage; as, for instance, with stocks that have already furnished first swarms or scions, and with first swarms and scions themselves. The strength of the population is reduced by this splitting up into several small families, and though there may be plenty of stocks and bees, there is rarely so much honey as might have been harvested had this division not taken place. Those using moveable frames—and to such only my remarks here apply—endeavour to avoid this inconvenience by cutting out all the queen-cells but one from the mother-stock, after the exit of the first swarm, or the formation of the scion. Putting on one side the difficulty of taking out and minutely examining the combs one after the other, and thus thoroughly disturbing the bee, this plan succeeds fairly with stocks from which scions have been made, and may be undertaken with certainty on the ninth or tenth day after; but in stocks that have swarmed, if the cells are cut out on the same day or a day or two later, open brood will probably be present, from which new ones are raised: while if the operation is delayed till the ninth day it is very easy to be too late.

Thus where the swarming method is practised, it is necessary, in order to prevent after-swarms, to cut out the cells on the same day, and also nine days later, thus twice going over this rough business. But suppose, unfortunately, that in the stock that has furnished either a natural or an artificial swarm, some trifling hidden queen-cell has been overlooked, or that the single majesty of the hive takes it into her head to swarm, an occurrence not unusual with us; swarming takes place, the cutting out of the cells has been in vain, and should the swarm be happily hived, a new perplexity frequently arises in not knowing from which stock it has issued, as the bee-keeper would be glad to return it in order that the stock may not be too much weakened and still capable of doing something. With my hives, a glance at the inside, if any one chooses to take the trouble of turning them up one after the other, is generally, though not always, sufficient to determine this. But how with the box frame-hives? is every stock to be opened and taken to pieces? No, rather is the swarm placed by itself to drag out a wretched existence, unless, perchance, another swarm can be joined with it in the course of a few days. And the mother-stock, even when it quickly gets furnished with a queen and does not become a prey to the moth, what does that yield? During the time, that had it not swarmed, it would have gathered and stored up honey, it will exert itself to regain its lost strength, and should it succeed in this during a good gathering, it has done all that is possible, but there is no honey for the bee-keeper, and the industry of the bees counts for nothing. But enough of this. Whoever has so thoroughly gone through it all as I have, will gladly listen when I tell him that all these wearisome operations, all these great vexations, may be easily avoided by the plan of division employed by me in my hive. In stocks that have swarmed naturally or artificially, the cutting out of the queen-cells is no longer necessary, that operation being left to the bees who understand the business better than many a bee-keeper, and the undesired swarming is radically hindered. This is an assertion, says the reader, which must be proved; and the proof is easy.

Experience has long shown that small populations, such for instance as are used in queen-raising, never think of swarming, unless troubled by the moth or by hunger. In their queenless condition indeed they take the precaution of raising several queen-cells, but under all circumstances they permit the queen that is first hatched to gnaw into the other cells and destroy the rivals she finds there.

To what breeder of Italian queens has it not happened to his great annoyance when about to cut out the extra cells for another use, to find these already destroyed? Let us use the hint so plainly offered and divide a population we do not wish to swarm, but that certainly would do so if undivided, into as many smaller populations as the circumstances demand. Sometimes only a twofold, sometimes a threefold division, is necessary. And as through such a division the first hatched queen most certainly destroys the other queen-cells, only one queen remains in each small population, and the latter, feeling its weakness, never thinks of swarming. Each compartment naturally makes preparations for the raising of queens, and in favourable cases a fruitful queen may be found in each: but at the worst, if only *one* of the two or three queens remains and becomes fruitful. the early requeening of the united population is assured. This will follow earlier if a queen-cell nearly ready to hatch has been inserted into each chamber two days after the division. About nine days afterwards a fruitful queen may be found in one or other of the divisions, under which, after the removal of the other queens, if such are present, the small populations may be again united. And in reference to the certain possession of a new queen by the reunited stock, it is only necessary to observe, that with two, and especially with three queens hatched, the probability of the loss of all three must be very slight. At least one queen will remain, which then becomes the mother of the whole reunited stock. But the unusual occurrence of all three queens in a threefold division being lost, is an exceptional case upon which little stress need be laid, since other divided stocks will have a spare queen for the less fortunate one.

It will be understood that by this mode of division drone-breeding in the mother stock becomes almost impossible. In this matter, again, the easy control that the apiarian has over the two or threefold stock comes to his assistance. And if, by this plan of division, he preserves only one of his stocks from drone-breeding, the slight trouble which it causes is thoroughly rewarded.

That these small stocks of the divided hive only build worker-comb under a young queen, results from their weakness and the impulse they feel to increase as rapidly as possible the working population which can only be raised in worker-cells.

In situations where bees that have a strong tendency to swarm * are cultivated, or where through a luxuriant pasturage they are easily excited to swarm, more especially if the stocks are kept thoroughly strong like mine, it not unfrequently happens that these stocks even under young queens, instead of worker-comb, vigorously begin to build drone-comb, which is frequently furnished with eggs. This undesirable occurrence is quite prevented by this plan of division. The empty frames with guides that are given to these divided stocks are, on account of the reason above stated, built without one cell of drone-comb. In this manner five new combs may be built in a

* 'In Lunenburgh, Oldenburgh, &c.,' says the Baron von Berlepsch, 'is a bee which in formation of body and in colour, that is zoologically considered, is identical with the ordinary kind, but which has certain peculiarities so marked, that it must be looked upon as a distinct race.

'(1.) A population with a queen of the current year builds as a rule some drone-comb, and often much.

'(2.) A queen of the current year lays drone eggs as a rule, and sometimes in considerable numbers.

'(3.) A queen of the current year often leads off a swarm.

'(4.) A fruitful queen of any age often leads off a swarm, although the stock is not fully filled with comb.

'(5.) The swarming impulse is so strong, that a rational management is thereby rendered very difficult.

'(6.) The building of drone-comb and the breeding of drones is so mischievous, that a rational management is thereby rendered very difficult.'—*Note by Translator.*

threefold stock, so that the united population may contain fourteen beautifully perfect combs, which, being free from drone-comb are of considerable value to the beekeeper. It must be remembered, however, that comb-building costs honey, which also has its value: and judicious beekeepers will make the production sometimes of the one, sometimes of the other, his principal aim according to the end in view. A certain amount of comb-building, however, should always be permitted to these populations in which the building impulse is strongly awakened when the young queen begins to lay. The increased industry of the bees through comb-building doubly compensates for the honey used for a moderate amount of combs.

There are two advantages of this mode of division which cannot be too highly estimated,—the raising of so many young queens, and the production of populations capable of work at the right time. Every stock yields one or two fruitful queens, which can be used for stocks that have not been divided, or for those that have become queenless, or for exchanging with old queens or those that are not satisfactory, or for sale if there is the opportunity. The advantages hence resulting, there is no need specially to mention: they are apparent, as also are those of possessing at the right time strong working populations, or to express myself popularly, 'to have bowls ready when it rains porridge.' He is in want of the bowls whose stocks first develope themselves, not before, but during the gathering time, or break up before or at the beginning of this time into smaller populations. This splitting up of the strength can be radically prevented, as I have pointed out by my plan of division if this is undertaken at the right time, that is so arranged that by means of the reunion of the small populations, strong stocks under young queens, free from the swarming impulse and filled with a restless eagerness in collecting, are produced at the season of the principal pasturage.

(*To be continued.*)

WASPS AND BEES.

By W. F. Kirby, *Assistant Naturalist in the Royal Dublin Society's Museum.*

The solitary sand and wood wasps, which form the next group of *Hymenoptera* (*Fossores*), have the legs of the female usually adapted for burrowing, and not for collecting pollen. The fore-wings are not folded longitudinally, as in the true wasps, and the tongue is never lanceolate or filiform. They vary a good deal in size, shape, and general appearance, having sometimes a superficial resemblance to other insects of the order. There is a considerable variety of solitary wasps, eight families being represented in Britain. They generally form burrows in sand or light earth, but the smaller species burrow in brambles, or some other stalk sufficiently soft for their purpose. Some species form burrows in rotten wood. After the egg is laid at the bottom these burrows are provisioned with spiders, or small insects, such as caterpillars, flies, aphides, &c., which are destined to serve as food for the grubs when hatched. Sometimes dead insects are stored up; but usually the wasps sting their prey in such a manner as to stupify without killing them, thus preserving them in a fresh state and incapable of escaping, till they are required by the young brood. The perfect insects may often be noticed on the flowers of Umbelliferæ (the wild carrot, parsley, chervil, &c.), or burrowing in sandy places.

The true wasps (*Diploptera*) are divided into two families, *Eumanidæ* and *Vespides*. The fore-wings are folded longitudinally in repose. The solitary wasps much resemble the *Fossores* in their habits; and differ from the social wasps in having bifid claws. One species belonging to the former group (*Eumanes coarctata*) makes a little cell of mud, which it attaches to the stems of plants, particularly the common heath. Each cell contains one grub, which is fed with a supply of the larvæ of small lepidoptera.

The social wasps, of which there are seven species in Britain, live in very large communities, composed, as in the case of most social insects, of males, females and neuters, which are sterile females. They form their nests either in the ground or suspended to trees or bushes. These nests are filled with cells similar in construction to those of the hive bee, but composed, like the nest itself, of a substance formed of the raspings of wood, and more like coarse paper than anything else.

Each nest is founded by a female which has survived the winter in some sheltered nook, and consists at first of but few cells; but it is rapidly enlarged as the successive broods are hatched during the summer, and has been sometimes found to contain as many as 16,000 cells. All classes live in harmony, and join in the useful labours of the nest: the females furnishing the population: the workers providing food, attending to the young, and enlarging the nest, and the males keeping the passages and cells clean.

The number of inhabitants of a wasp's nest seldom exceeds 3000. In the autumn, when cold weather sets in, the frost soon destroys the whole community, except a few females, which pass the winter in a torpid state. Therefore, if we kill the large wasps which are the first to appear in spring, we shall prevent the formation of nests which we may afterwards find it difficult or impossible to destroy.

The bees, or *Apidæ*, the last group of the stinging hymenoptera, may most easily be distinguished from other insects of the order, which some species superficially resemble, by the hind-legs being more or less flattened, for the purpose of carrying pollen. They are divided into two families, the *Andrenidæ*, in which the tongue is variously shaped, but does not form a long proboscis as is the case in the *Apidæ*, the family to which the hive-bee and humble bees belong. The *Andrenidæ* form cells for their larvæ either in the sticks of bramble or rose, or burrow in the ground. The larger species appear in early spring, and may be met with flying round the blossoms of the sallow. Some of the *Andrenidæ* are gregarious, others strictly solitary; but none are social, in the proper sense of the word.

The *Apidæ* differ greatly in their habits; some are social, other solitary, and others again parasitic upon other bees. One section is called 'cuckoo-bees,' because they haunt the burrows of other bees, watching an opportunity to put their own eggs among the food, in place of that of the rightful owner. When this occurs the latter deserts it, and sets to work elsewhere. Others of the *Apidæ* form their cells in dead brambles in the ground, or in walls; sometimes even snail-shells are used for this purpose. The leaf-cutting bees form burrows in decaying wood or other soft material, which they line with circular pieces of leaves, cut with great neatness from rose-bushes and other trees.

The social bees consist of the humble-bees and hive-bees. The humble-bees are large and handsome insects, well known to all observers; the commonest species are either banded with black and yellow, or have the extremity of the body red. They live in small communities of males, females, and neuters, in nests formed in the ground or among moss. They differ from the hive-bee in two very important particulars—first, the smallness of their nests, which probably never contain more than 250 inhabitants, and sometimes only twenty or thirty; and second, in the presence of several females in the same nest, in which last particular they resemble the wasps and ants. Humble bees, perhaps, partly owing to the exposed situation of their nests, are infested with many parasites, and if a bee is captured, it is no unusual thing to find several mites running upon it.

The genus *Apathus* consists of four species much re-

semhliug humble bees, and which are believed to be parasitic. There are no neuters in this genus.

The hive-bee is too well known to need description here. Its remarkable economy and great intelligence have been known from the earliest times. The hive-bee of the classical authors is not our common species, but is known to modern bee-keepers as the Ligurian bee. It has recently been introduced into Great Britain from its native country, the south of Europe, and is so closely allied to the hive-bees that it is said on good authority that hybrids, or crosses between these two domesticated species, are not uncommon.—*Irish Farmers' Gazette.*

BEES IN A BARREL.

These industrious little insects have swarmed unusually early here this year. Notwithstanding the severe winter, swarms have been strong and wild. A lady on Friday, the 4th inst. hived a swarm no less than three times, but whether the new home was not sweet enough or sufficiently lofty, is not known; the bees certainly determined, although under a feminine monarchy, not to submit to the absolute rule of a queen; hence, much to the chagrin of the expectant owner, who brought into requisition book and bell, the rambling prodigals pursued their way over hedge and ditch, graveyard and stones, to some scaffolding used in the house of the venerable Mr. Peppercorn. Here her majesty collected her faithful followers around her on a dusty lime pole, and were eyed askance by the busy workmen, who did not much relish the companionship of the intruding renegades. While the workmen were mentally surveying the large collection, a thunderstorm threatened. Her majesty's scouts and *aide-de-camps*, with a quick perception, saw that the cork was absent from one of the eighteens used for supporting the scaffold planks; and with that watchful care, for which they are renowned, they, with proper obeisance, immediately informed their royal mistress, who at once, without risking any further danger, entered, and commenced piping and singing to the would-be master and his fellow-workmen. Here they remained safely ensconced during the whole of Saturday and Sunday, pursuing their avocation with unwonted energy. Monday morning's sunshine, however, recalled them to their duties with remarkable industry, and the royal kingdom undoubtedly felt that their reign would be long, happy, and glorious. But alas! the contractor did not quite wish to have the honour of returning a barrel of honey to the brewer with the other empties. So to save trouble, as the work was nearly finished, the ruthless order was given to pull down the scaffolding; the barrel, with its proud inhabitants, were brought from their high eminence down to the lowly earth. This they did not like, and resented the indignity strongly by waxing wroth with the masons; and, consequently, the fraternity was soon at open variance. The 'singing masons building roofs of gold,' buzzed and hummed and threw out such a perfume as to draw the attention of all the other bees in the neighbourhood. What was to be done? 'It's a pity to destroy the poor little creatures,' says one man. 'Well, we can't be bothered in this way,' said another. 'And I shall know how to settle with you on Saturday,' said the master. This hint speedily brought matters to a conclusion, for it would never do to incur the displeasure of the master as well as that of the bees. So one, more brave than the rest, plied the pump-handle, and dashing a bucket of water into the barrel, drowned the lot. What an ignominious death for industry to die! What a reward for presumption! Had the nomadic tribe remained under the safe surveillance of Widow Cranfield, how happy their lot! Preferring beer rather than to *be* under *her*, they soon found a watery and beery grave. The moral from our Good Templar friends will probably be: 'Avoid not only beer, but beer-barrels.'—*Eaton Socon Gazette.*

Foreign Intelligence.

FRANCE.

The season continues in the most satisfactory manner. Stocks generally are gathering honey on a large scale, while an abundant swarming has had the effect of almost doubling their number. Flattering reports are also reaching the Association from such bee-keepers as have imported the Ligurians with a view to improve their apiaries.

Already a considerable number of local shows have taken place throughout the country, and many more are advertised for the remainder of the season. The *Apiculteur* of last month gives the list of medals already distributed this year From Bordeaux they write that the second grand show of the 'Société d'Apiculture de la Gironde,' which has just been held, was as good as could be wished.

Considerable importance is attached to the International Exhibition, to take place at Cologne in August and September next. The French Société d'Apiculture makes an appeal to all French bee-keepers, urging them to take as large a part as possible. M. Etienne Bonnet, of 17 Rue de Rivoli, Paris, is the party appointed to take charge of all French exhibits.

Three swarms of bees were picked up in the heart of Paris during one week only last month. One of them had settled down inside a lamp-post in Rue St. Martin.

The price of honey of the new season has been fixed at 130 to 135 francs per 100 kilometres, barrel free.

GERMANY.

The general topic of the day among apiculturists is the forthcoming International Exhibition at Cologne, to which bee-keepers of all countries are invited to take part.

According to the *Journal de Breslau*, Dr. Dzierzon has been a victim of his Bishop's injustice. The doctor, who, as is well known is no man of fortune, enjoyed a pension from the bishopric, of which the Bishop thought proper to deprive him owing to the doctor's refusal to accept the dogma of the Pope's infallibility. The matter, however, having been referred to the law, the result has been that the Bishop has been ordered to pay to the great bee-master his usual pension, *plus* all arrears and interests. The decision has been welcomed by all interested in the progress of bee-culture.

SWITZERLAND.

It is reported that the taste for bee-culture has been much on the increase of late, owing, as is asserted, to a series of lectures delivered on this subject by M. Ribeaucourt at various districts by order of the Swiss Government. M. Ribeaucourt being an advocate of the moveable bar-frame and storifying system, hives on this principle are gaining the patronage they deserve.

ECHOES FROM THE HIVES.

Somerset.—The prospects of the honey harvest are not so cheering as one could wish; for, in common with the other districts, Somerset has suffered considerably from the heavy rains. Indeed, I may say we have suffered more than most of our fellow-countrymen; for there are tens of thousands of acres of moorland—most of which is splendid feeding-ground for bees as well as for beasts and sheep—in the country, and for a considerable time recently they have looked more like a vast inland lake than the happy hunting-ground of busy bees and grazing land for bulky beeves. It is all very well for Mr. Mechi to tell us that—

'A dripping June puts all things in tune.'

Might we not reply—

'And a wet July puts all awry?'

However, just now, it really looks as though we were about to have a spell of fine weather, and the workers are making up for lost time by giving us their gladsome music, and gathering their luscious stores with hearty good-will. There is much to be done here in the way of educating bee-keepers. Superstition and ignorance are rife, and bee-icide is considered the correct thing. I wanted to buy a few swarms a short time since, but sought in vain for cottagers ready to sell. Several had more butts (stock hives) than they wanted, and would have been glad enough with cash; but when I asked the price per swarm I was met with the answer, 'Oh, we never sell them—'tis unlucky;' and 'boughten bees never do any good.' This foolish prejudice is not confined to the poor and uneducated; for intelligent men, who do considerable business, have told me the same. In vain have I reasoned with them—even the almighty-dollar argument has failed in this matter; and fire and brimstone still do their deadly work. Sincerely do I wish the committee of the British Beekeepers' Association would publish some brief, practical, and interesting illustrated tracts on the pleasures and profits of bee-keeping, and the folly of the fiery furnace. I would gladly give a trifle beyond my ordinary subscription towards the cost, or undertake to purchase a certain number, so as to send copies to all the clergymen in my neighbourhood, and to cottagers. I have met with many persons lately who have had bees for years, but who were ignorant of the first principles of apiculture. A few days since I visited a farmer who had eight stock-hives, but who had not taken a single pound of honey for about ten years. You will scarcely wonder at it when I tell you that some of the skeps were almost rotten; that the hackles, or reed covers, were dreadfully dilapidated; that the hives were standing under a large overgrown tree, and that the entrances to some of them were hidden by surrounding crops: for the garden had been dug and planted almost close to the stands. The owner was astonished when I told him what profit he might have reaped from the poor bees during the time he had treated them with contempt. When I remonstrated with the good dame indoors respecting the neglect of golden opportunities, she replied, in the broad Somerset brogue, 'The things be sa zassy. Why I were astinged be one o' 'em only tother day. 'I jest stooped down to pick up zummut, and he rushed at me quite zavage loike; so my vace were azwelled vur days.' In another case our favourites had got into sad disgrace, because they had stung a rabbit, upon whose hutch their skep had been placed. But, even where the honey is taken, and something like management is attempted, in consequence of badly-constructed hives, and a want of knowledge, the yield is generally so small that the owners do not consider they get an adequate return for their 'trouble,'—aye, there's the rub! The straw skeps principally used in this neighbourhood are small, and the honey taken therefrom averages 10 to 15 lbs. I have, however, met with a few farmers and cottagers who are wise enough to have their skeps made larger than it is the common practice to do, and who thus get double the weight named. In one district I recently visited it was the fashion to call the queen a king. When I corrected the error, the man to whom I was talking, and who had been a bee-keeper for many years, replied, 'Well, it always used to be a king. I suppose they call it queen now because we have a queen.' When Virgil wrote his celebrated lines—

> 'The monarch bears an honest, open face,
> Of larger size, and god-like to behold,
> His royal body shines with specks of gold,'

might he not have obtained his information from an equally logical apiarian? Evidently many of those who keep our busy little friends do not know much about them. There is a fine field open for the Association to do really practical educational work.

A few days since I called on a cottager who had taken two excellent swarms and three casts (locally known as 'cat-swarms,' or 'pin-swarms,') from two butts in May. The first outcomes he valued at 1*l.* each, but offered the others at 5*s.* Good May swarms can, however, be had in various parts of the country at 10*s.* to 12*s.* 6*d.* each. I hope to introduce your cottage hives to many of my poor neighbours; and perhaps some day you may see your way to publish a cheap little pamphlet fit for cottagers, as well as the more expensive work which 'Melissa' wrote about in the May number, and which all your readers would heartily welcome. Next month I hope to say something about local superstitions with respect to bees, if you can find room for it.—TAUNTON DEANE.

Honey Prospects in Gloucestershire.—'The season here has been remarkably bad, bees being unable during the whole of the time to get more than sufficient for breeding purposes. Out of sixteen days during which the limes were in blossom, fourteen were wet, and swarms which have not been fed properly have not half filled their hives. Supers are at best a rarity, and large ones entirely out of the question—at least such is the case in the Stroud Vale—even with stocks which have not thrown swarms.'

Reigate.—'Thanks for your simple instructions for wax-sheet making in our *Journal*. I have followed them, and made fifty in a short time at the first attempt.'—T. J. R.

Market Rasen.—'I have hesitated about continuing my subscription, having been left beeless by the severity of the last winter's blast. At first I attributed the loss to the wood hives; but a party in an adjacent village having suffered to a greater extent than myself in straw hives, I now attribute my loss to want of ventilation, as they had sufficient honey in the hives to serve them through the winter. Previous to the last two winters, I have always ventilated with a piece of perforated zinc over the feeding-hole in centre. In winter '73 and '74 I put a piece of felt cloth over the hole, and they passed through very well. Last winter I did neither, but left them to their own resources and instincts, and the result was as I have stated. However, I have made up a hive nearly full of clean comb, and obtained a late swarm, the last day in June, of common bees, with, perhaps, a tinge of my Ligurian blood in them, for the party has among his bees as good Ligurians as those to which mine had deteriorated. My hives are made on the 'Carr' principle, which are very nice as far as they go, and they go a good way; but still I think they are not the best for practical work, that is, the production of honey. A hive perfect in every respect is still wanting. Such an one I am waiting to see before I make any more wood hives. Perhaps the next exhibition may bring it forth.'—J. R.

Gourock, June 30.—'The present appearance for our show is very poor, the weather for the last six weeks having been dead against our little favourites. Some hives are at death's door through the carelessness of their owners, in not giving them a little feeding, while even the best hives cannot keep themselves. My own hives are all very strong and healthy, but none of them have been able to lay past any of their produce. However, I am keeping them up in the hopes that we shall yet have some good weather, and if this does come I shall then have no reason to regret the extra assistance I have given them.'—J. W.

M. S. A., *Barrowby, near Grantham.*—'Every one I have spoken to about the Show seems very pleased with your exhibition of bee management, and I can assure you you have done a great deal of good in this neighbourhood, by stirring us bee-keepers up, and showing us what may be done with our hard-working little friends at a small cost, as we before thought it was necessary to have very costly things to work them in anything but the old straw hive.'

Glasgow, July 22*nd.*—'Just returned to town after a week's holiday. Bees doing A1; expect good boxes for the Show.'

Queries and Replies.

QUERY, No. 131.—May I trouble you for answers to the following questions?

1. *The cheap hive.*—How did stocks of bees in the cheapest bar-frame hives bear the winter? What protection was made?

2. *Bee-houses.*—Do you make use of any kind of hive-house?

3. *Bees in Skeps.*—From what I have read in the *British Bee Journal* I infer you have some bees in skeps; if so, why?

4. *Relative value of systems.*—May most honey be obtained by the supering, storifying, collateral or nadiring system, equal skill in management in each case supposed?

5. *Positions of frames.*—Would it not be better to place the bar-frames in hives, parallel with the surface in which the entrance is, and that entrance as distant as possible from the centre of the time?

6. *Californian Bee-keeping.*—Are not wooden rectangular hives with bar-frames those in most general use in America and Germany? Does this obtain in the more extensive apiaries of both countries? I believe it was in your *Journal* that mention was made of an immense Californian apiary, would not a more extended description prove acceptable to your readers?

7. *Uncle Walter's hive.*—I shall be glad to learn if your correspondent 'Uncle Walter' has constructed and stocked the hive he mentioned in your November number; will you allow me to ask him whether the joints were perpendicular to the walls of the house, and the combs consequently parallel with it, or *vice versa?*

8. *Bottom distance keepers.*—What is your opinion of distance-keepers at the bottom as well as the top of bar-frames?

9. *Queens in outlying clusters.*—Is the queen ever present in the bunch of bees which may be seen hanging from the hive-stand before swarming?

10. *Bee Books.*—Could you not favour us with a review of Mr. Hunter's and Mr. Rusbridge's books?—J. H. ELDRIDGE.

REPLY TO QUERY, No. 131.—No. 1. Stocks in the cheap half-inch hives wintered well; the protection was the quilt composed of several thicknesses with a sack or mat thrown over so as to hang down the sides. In some cases a folded sack was bound round the hive, and in no instance did any of the bees suffer from dampness. The space between the quilt and roof being well ventilated.

2. We *have* a kind of house constructed for eighteen hives, and we *use* it as a poultry-shed. The only hives we ever permit in it are straw skeps which when inverted and half filled with damp earth, make excellent nests, and help to prevent foul-brood in the chickens.

3. We *have* some bees in straw skeps, and can give a good reason 'Why?' It is because we can buy them so much cheaper in those domiciles than in bar-frame hives. The cottagers who cultivate bees in the latter, are as a rule intelligent men beyond the ordinary run of their class, and having mastered the alphabet of the bar-frame principle know too well the value of the stocks domiciled in them to be easily induced to part with them. The cottagers who keep their bees in skeps have no idea of their true value, and are therefore content to sell them for the estimated value of the honey they contain at *taking-up time*, and that in many seasons is very little—for instance, we once bought thirteen stocks of an old bee-keeper at Kilmarsh on the North Western Railway for forty-five shillings; but only one contained honey sufficient for the winter; the remainder were '*as light as corks*,' their estimated value when *brimstoned* being about twenty shillings, which, with one shilling each for the skeps, and the balance for the one heavy stock, made up the amount.

We continue to *keep* those which have been this year purchased in skeps in their own domiciles simply because the public demand for bar-frame hives has been so great that we have found it utterly impossible to procure hives of that description into which to transfer them. We need not enlarge upon these facts; they speak for themselves, and afford a good reason why bees under the new method of management are more expensive than under the old skep system.

4. Of the four systems named we prefer the 'supering.' The 'storifying,' unless in connexion with the 'Stewarton' system, is however so much like the 'supering' that there is little to choose between them; the others we have no faith in, believing that bees do best when their storehouses are *above their brood.*

5. In such matters the instinct of the bees is the best guide, and they as a rule build their combs perpendicular to the entrance face of the hive. They are better architects than to make all their passages at right angles to their line of entry; suppose, in such a case a bee had to go from the entrance to top of the back part of a Woodbury hive, it would have to traverse the full length of the floor-board 14½ inches and then up the back wall nine inches, a total walk of 23½ inches, whereas by the other arrangement they could make a diagonal march, and would reach the goal in seventeen inches and a small fraction.

6. The bar-frame principle of hives undoubtedly predominates in both America and Germany, and although the hives differ in construction in the two countries, the rectangular shape is generally adopted. The great Californian Apiarian, in reply to a letter of inquiry, declined to make his method of bee-culture known. He is reported to have said in effect, that he did not see why he should *give* the public the benefit of his study and experience, the meaning of which will be better understood when it is known that he takes apprentices.

7. 'Uncle Walter' has constructed a hive of the pattern suggested by the bees in the dwelling-house, and it is stocked with bees (a small late swarm). The joints of the house were parallel to the wall through which the bees made their entry, and the combs were built so that the bees could get by the shortest way to the back, as we have said they instinctively do.

8. Distance-keepers at the bottoms of frames have hitherto been simply nuisances, we prefer that the distances should be regulated from above. Many persons construct hives as if they were intended to be always travelling by railway or waggon and subject to all kinds of jolting; this, however, is not our idea, nevertheless a hive should be so constructed that every comb can be packed

securely for a moderate journey with a minimum of discomfort to the bees.

9. It would be folly to assert that a queen is never present with a cluster of outlying bees, because it may happen, that in attempting to swarm, her majesty may fall to the ground, and the bees missing her might return and cluster about the hive entrance, and while there she might join them, as she would have done naturally if she could have flown to their first clustering place. By any such *accident* the queen might get amongst a cluster; or, when a number of young queens hatch simultaneously in a hive one or more of them, to avoid the royal contest which appears inevitable, may rush out of the hive and join the clustering bees; but both of these are possibilities which will seldom occur; and it may be confidently asserted, as a rule, that out-lying clusters of bees have not queens with them.

10. We could not possibly afford space for a review of Mr. Hunter's book; there is nothing in it of any value which has not already appeared in the *British Bee Journal*, and there is much in it which is misleading. We take the present opportunity of saying that the copious extracts and illustrations from our columns were *taken* by Mr. Hunter without our knowledge or permission, and that the book was not issued, as many suppose, with the sanction, approval, or knowledge of the Committee of the British Bee-keepers' Association.

Mr. Rusbridge's book is an honestly written work, and the only thing we regret is that there is so little of it.—Ed.

NOTICES TO CORRESPONDENTS & INQUIRERS.

Chartwell, *Westerham.*—The best way to remove honey from our cheap Cottagers' Hive is by the aid of the Extractor; but much (if it be thin) may be obtained by the old process of *draining*, *i.e.* by slicing off the seals of the cells, and laying the combs on a wire grating in a warm room or cupboard to permit the honey to fall out of the cells by its own weight. We hope some day that every village in the kingdom will possess its 'Slinger,' as an actual necessity, like the drilling-machine used in agriculture.

C. W. *Catford.*—The Improved Cottage Woodbury Hive, and how to make it, were fully described in the March, April, and May Nos. of *Journal*, 1875. Our New Frame Bar-hive was described in Vol. I. The thumb-screws in the sides of it are to hold the dummies close to the hive-sides to prevent propolising by the bees. The 'boxes' are Lees' Prize Supers, one of which is supposed to be first nearly filled before the other is placed upon or under it. The queen will sometimes go into a super and deposit eggs, in which case it is better to leave the super on the hive until the consequent brood has hatched out, or, to adopt the other course recommended in this month's 'Editorial.' The perforated zinc over the feeding-hole may be removed at any time, and anything else substituted. Far from considering you troublesome we have great pleasure in replying to your queries.

Post-Cards, *Hungerford.*—The *objection* you make to the use of post-cards has been our *reason* for using them. A *letter* announcing the despatch of a swarm of bees, or a queen, might, through the absence of the consignee, be no warning of their probable arrival, whereas, a post-card that 'everybody reads,' would let everybody know, which is as it should be.

Glastonbury.—We must decline to reply to queries through the post, except to Subscribers. You say you take a share in the *Journal* with a distant friend, and you want information for your next-door neighbour, which would occupy an hour's writing, which is positively unreasonable. It is absurd to say you cannot afford the *Journal* when your bees are telling you every day that you cannot afford to be without it. There is little doubt but that your friend's swarm, being a 'cast,' has lost its queen, probably while on her wedding-trip, and, if so, they will fall a prey to a stronger stock, and probably unite with it. There is no danger of foul-brood through cutting out the piece of brood-comb, as in all such cases the bees immediately clear away all the damaged larvæ.

H. F.—After such wretched weather, when, as you say, the bees have been unable to gather anything, 'taking' the four old stocks will be but a poor experiment. Unless there is a favourite queen amongst them you need scarcely trouble to *select* one, they will do that for themselves; the strongest will reign. See also articles in *Journal* this month.

Rusticus.—The distance to the heather being only five miles, the bees might be carried on yokes two or four at a time according to their weight. Two men with a *hand-barrow* could carry eight skeps easily, after such a season as the present, making about four hours' work. Mr. Carr's letter (pp. 67, 68), will give the other information.

Honey Fair.—We do not think valuers of honey will be appointed at the Show. Senders must fix their own prices for it, and all such as is reasonable and easily portable will most certainly *be sold*. The probable prices will be:—Super Honey, in convenient boxes, from 1*s.* 6*d.* to 2*s.* 6*d.* per pound. Extracted Honey, of guaranteed purity, will realize rather less; and Run Honey, *i.e.* that obtained by crushing the comb, from 8*d.* to 1*s.* Those who wish to find a market will do well to abstain from marking fancy prices on their packages. Please refer to June No. p. 38.

Cottagers' Hives, *Somerset.*—We hope to be enabled to supply the Cottagers' Hives at 6*s.* 6*d.* and 3*s.* in time for transferring. For replies to other queries please refer to articles in *Journal*.

Belvoir.—As you wish to preserve the skeps, the sticks must be withdrawn before cutting out the comb; if, however, any of them are built lengthwise into the combs, they must be cut off inside the hive. Skeps are seldom worth preserving after having been in use for a year or two, and then to use a second time is often fatal to the swarm; hence, in transferring, we always cut the skeps to pieces. Crooked combs should be cut half-way through on the inner side of the bend at every few inches distance, they will then lie comparatively flat, and the bees will do the repairs. The full frames of comb should be placed so that the brood be as much together as possible, one empty frame being placed in the centre of them, and the whole enclosed by the dividing-board, when gentle feeding should be commenced and continued as long as necessary. The $1\frac{9}{20}$ inches is already defined in our gauge. If you cut a piece of hard wood by it, and nail two longer pieces one on either side, your carpenter will have all *he* requires as a gauge for distance-keeping frame-bar-ends.

*** We have been induced, from the extraordinary pressure of matter, to add eight pages to our *Journal* this month, which has enabled us to insert several articles which have been in type for some time past. We have, however, still some important papers which we are reluctantly obliged to postpone for another month. We entreat our correspondents to be as concise in their communications as possible.

A coloured wrapper signifies that the subscription is over-due.

BRITISH BEE-KEEPERS' ASSOCIATION.

COMMITTEE MEETING, THURSDAY, MAY 27, 1875.

Present—Messrs. COWAN, HOOKER, ATLEE, CHESHIRE, ABBOTT, and the HON. SEC.

THE Schedule of Prizes for the Second Bee and Honey Show, to be held at the Crystal Palace in September next, was revised, and may be found on page 38 of Journal.

PRIZE FUND, 1875.

PAID.	£	s.	d.
Ainsworth, R. H., Esq. ...	2	2	0
Atlee, C., Esq.	1	1	0
Bagshaw, T., Esq.	1	0	0
Barlow, P. T., Esq.	0	5	0
Bassano, W., Esq.	1	1	0
Bayly, R., Esq.	1	1	0
Bickham, S. H., Jun.... ...	1	0	0
Bligh, Hon. & Rev. H. *Special*	5	0	0
Cheshire, F., Esq.	2	2	0
Clark, W. H., Esq.	0	10	0
Corbet, Rev. A.	1	0	0
Cowan, T. W., Esq.	5	0	0
Cracklow, Gen.	0	5	0
Crompton, Rev. J.	0	2	6
Cressy, Miss A.	0	5	0
Danby, G., Esq.	0	2	6
Daw, E., Esq.	0	10	0
Desborough, J. G., Esq. ...	0	5	0
Dixon, A., Esq.	0	5	0
Fletcher, C. E., Esq.	0	5	0
Fox, George, Esq.	0	5	0
Frere, G. E., Esq.	1	0	0
Frere, Rev. W. G.	0	5	0
Frith, Geo., Esq....	0	1	6
Glennie, Rev. J. W.	0	5	0
Glennie, W. O. B., Esq. ...	0	5	0
Harrison, T. N., Esq.... ...	1	1	0
Hart, J., Esq.	0	1	0
Hodgson, C. H., Esq.... ...	1	1	0
Jackson, F. R., Esq.	1	1	0
Legge, Hon. and Rev. A. ...	1	1	0
Masters, Mrs.	0	5	0
Milles, Rev. Thos.	0	10	0
Morris, James, Esq.	0	10	0
Newland, J. F., Esq.	1	1	0
Pagden, Mrs.	0	10	0
Page, Henry, Esq.	0	5	0
Poole, O., Esq.	1	0	0
Raynor, Rev. G.	1	1	0
Smalley, Rev. C.	0	5	0
Smith, C. W., Esq.	0	10	6
Stewart, J., Esq....	0	5	0
Sword, W., Esq.	0	5	0
Turner, Rev. W. V.	0	2	6
Wade, C., Esq.	0	10	0
Welch, Thornton H., Esq....	1	0	0
Willett, Rev. F.	1	1	0
PROMISED.			
Carr, W. B., Esq.	0	10	6
Crystal Palace Company ...	25	0	0
Filleul, Rev. P. V. M.... ...	0	10	6
Hooker, J. M., Esq.	1	1	0
Melladew, E., Esq. *Special*	5	0	0
Pennell, Rev. D. W.	0	5	0
Power, Henry, Esq.	0	10	0
Stracey, Rev. W. J.	0	10	0
Wilson, F. W., Esq.	0	10	0
Total	£72	6	6

Eaton Rise, Ealing.

JOHN HUNTER, *Hon. Sec.*

THE CALEDONIAN APIARIAN AND ENTOMOLOGICAL SOCIETY.

AUTUMN EXHIBITION, 8th September, 1875,
CITY HALL, GLASGOW.

Patrons:

His Grace the DUKE OF ARGYLL.
Colonel D. C. R. C. BUCHANAN, of Drumpellier.
Professor W. B. HODGSON, Edinburgh.

President:—The Hon. the LORD PROVOST OF GLASGOW.

Vice-President:—R. J. BENNETT, Esq., 50 Gordon St. Glasgow.

Secretary:—WILLIAM THOMSON, Blantyre.

Treasurer: F. Gibb DOUGALL, 167 Canning St. Calton, Glasgow.

SCHEDULE OF PRIZES,

OPEN TO ALL COMERS.

CLOVER OR FLOWER HONEY.
(*Exclusive of Heather.*)

Class A.	Prizes. 1st.	2nd.	3rd.
1. For the largest and best display of honey and honey-comb	40/	30/	20/
2. For the two best supers above 18 lbs. each	30/	20/	10/
3. For the two best supers above 12 lbs. and under 18 lbs, ...	20/	10/	5/
4. For the best single super above 20 lbs. .	20/	10/	5/
5. For the best single super above 12 lbs. and under 20 lbs.	12/6	7/6	3/
6. For the best sample of not less than 10 lbs. of run honey	15/	10/	5/
7. For the finest super or glass, any size .	10/	5/	2/6
8. For the best straw super, any size . .	10/	5/	2/6

Class B. HEATHER HONEY.			
1. For the best display of honey and honey-comb	40/	30/	20/
2. For the two best supers above 18 lbs. each	30/	20/	10/
3. For the two best supers above 12 lbs. each and under 18 lbs.	20/	10/	5/
4. For the best super above 20 lbs. . .	20/	10/	5/
5. For the best super above 12 lbs. and under 18 lbs.	12/6	7/6	3/
6. For the best sample of strained honey not less than 10 lbs.	15/	10/	5/
7. For the finest super or glass, any size .	10/	5/	2/6
8. For the best straw super, any size . .	10/	5/	2/6

Class C. HIVES AND WAX.			
1. For the best sample of wax, not less than 1 lb.	7/6	5/	2/6
2. For the best sample of wax-sheets, not less than six sheets	7/6	5/	2/6
3. For the best and most perfect bar-frame hive	1st, 2nd, & 3rd Cert.		
4. For the cheapest bar-frame hive .	10/	,,	,,
5. For the best and most perfect hive on the storifying principle .	10/	,,	,,
6. For the cheapest hive on the storifying principle	10/	,,	,,
7. For the cheapest and most efficient honey-extractor	20/	,,	,,
8. For the best straw hive of any description	5/	,,	,,

Class D. LADIES' PRIZE.	
1. For the best executed model or ornament in wax	GOLD RING.

Class E. CONFECTIONERS' PRIZE.	
1. For the best comfits made from honey	CERTIFICATE.

The Society will hold its exhibition on the same day, and in conjunction with the Glasgow and West of Scotland Horticultural Society, at their September show.

All exhibitors will be subject to the rules and regulations of the Horticultural Society.

All articles intended for exhibition or competition must have a card attached, distinctly marked with class and number for which they are intended. If for exhibition only, must be so declared.

Entries must be made with the Secretary not later than the *1st day of September.*

Entry money (which must be paid at time of entry), one shilling for each exhibit.

All honey must be the *bonafide* property of the exhibitors, produced from their own apiaries, and to have been gathered by the bees in the natural way within the United Kingdom, and all to be the produce of 1875.

No prizes will be awarded where three lots have not been entered for competition, unless specially recommended by the judges.

Judges are empowered to withhold prizes if exhibits are not of a sufficiently meritorious character, or to award prizes for any appliances which may be exhibited, and are calculated to be of real service in the apiary.

A General Meeting of Members will be held in M'Innes' Hotel, Hutcheson Street on 7th Sept., 1875, at 3 o'clock.

OUR WANT AND SALE COLUMN.

WANTS may be advertised at 2*d.* per line of eight words, for one insertion, renewable in succeeding months, for three months, without alteration, for half price. Replies must contain stamped directed envelope, or they will not be forwarded.

All monies must be deposited with the Editor, who will communicate with the vendor, when, if a sale be effected, one penny in the shilling will be charged on all amounts not exceeding one pound, and one halfpenny additional will be charged on every shilling beyond that amount, and the balance forwarded to the vendor.

Should no sale take place, the money deposited will be returned to the depositor, less a uniform charge of fourpence to cover postage.

The carriage of all articles sent, except such charges as are incurred in first placing them on a railway, must be paid for by the depositor, and if not equal to the description given, the advertiser must pay the cost of their return.

The postage of small articles, such as books, must be prepaid by the sender. The name of the town or country in which advertisers reside, and the name of their railway, should be mentioned as a guide to probable cost of carriage.

No advertisement must contain more than sixteen words. P. O. Orders to be made payable to C. N. ABBOTT, office of *British Bee Journal*, Hanwell, W., London.

No.		s.	d.
133	'The Management of Bees.' By Samuel Bagster. 244 pages and 40 illustrations. Post-free	6	0
136	Three hives of hybrid Italian bees, in boxes with glass windows on three sides—very healthy—with young queens of last summer, will travel any distance, Somersetshire, each	40	0
138	For Sale.—One or more strong stocks of pure Ligurian bees, in Woodbury frame hives, Dublin ... ... each	50	0
141	'Full and Plain Directions for the Management of Bees to the greatest Advantage.' By the old and able author, John Keys. Post free, in excellent preservation	7	6
143	One 10-frame hive, projecting ends to frames, one window with three glasses, outer cases, super-cover and roof, floor-boards, crown-boards, and quilt	25	0
145	Taylor's 'Manual of Bee-keeping'	2	6
147	One stock of hybrids, Ligurian mother, double-cased hive, with stand, roof, and cover. Leamington	55	0
150	Wanted.—Clean new straight worker comb—any quantity. J. F. Newland, Wandsworth Common.		
161	'The Female Monarchy.' By Rev. John Thorley, 1744, 206 pages	3	6
162	Huish on Bees, 1844	2	6
163	Murphey's Honey Extractor direct from the maker	70	0
165	Second-hand Cottage Woodbury hive (Symington's)	15	0
168	Forty queen-boxes, twopence each, or the lot ...	5	0
169	Octagon super, wood and glass, to hold 25 lbs.	5	0
170	Large 13-frame hive, with frames, Quinby size, double-cased front and back, with glass front and 2 division boards	15	0
172	Nucleus hive, with Cheshire's twin frames ...	4	0
175	Two Octagonal supers, to hold 25 lbs. each, wood and glass	10	0
176	Neighbour's improved Cottage hive, second-hand, minus the 3 bell-glasses	15	0

WANT AND SALE COLUMN—CONTINUED.

No.		s.	d.
180	Three Octagon boxes, each with glass window and shutter, to use on the storifying system	10	0
181	Large Octagon box with 3 windows and shutters, has been used as a nadir	5	0
185	Indiarubber Gloves, cost 6*s.* 6*d.* last year ...	5	0
187	For Sale,—One 18-in. Pettigrew	3	6
188	,, One 20-in. ,, ...	4	0
189	,, Two 20-in. nearly new	5	0
190	,, One 18-in. ,, ...	2	0
191	,, One 18-in. Yates' hive, nearly new, with new eke	2	6
192	Wanted,—A large quantity of straight worker comb, Birmingham. State price, &c., to Editor.		
193	Three second-hand ekes, 18-in. diameter each	1	0
195	For Sale.—One of Neighbour's Improved Cottage Hives, minus bell-glasses	15	0
198	Guide-plates (4 × 1½ inches), fitted, with wooden screw-press complete, for making impressed wax sheets	10	0
199	Microscopy.—Willing to exchange first-class microscopic slides, &c., for good swarms. John H. Martin, Mount Pleasant, Tunbridge Road, Maidstone.		
201	A Cottage Woodbury Hive	15	0
202	An Eleven bar-frame Woodbury hive	7	6
203	Wanted.—Vol. I. of *Bee Journal*. Full price given.		
205	Wanted.—Index for Vol. I. *British Bee Journal*. State price.		
206	For Sale.—*British Bee Journal*, Vol. I., price	21	0
207	Condemned Bees, at per lb., for strengthening weak stocks. Price according to quantity. Lincolnshire (not Epworth).		
208	Unicomb, holds one frame, glass sides, for show	7	6
209	The Improved Cottage Woodbury Hive, made according to directions in Journal, and approved by Editor, unpainted. Lancashire	20	0

Just out.

The 'British Bee-keeper's' Microscope.

A useful and popular Instrument, well adapted for all Microscopic purposes.

It consists of a firm Stand, with Brass Uprights, coarse and fine Adjustments to the Body; ¼-inch Achromatic Object Glass, dividing to ½ and 1-inch; Stand Condenser for opaque objects; Diaphragm; Life-box; Stage and Dissecting Forceps. Complete, in Mahogany Cabinet, £3 10*s.*

Brass Stand Microscope, of similar construction to the above, two Eye-pieces of different powers; ¼-inch Achromatic Object Glass, dividing to ½ and 1-inch; also a 1-inch wide Angle Object Glass, for large objects; Stand Condenser; Diaphragm; Stage and Dissecting Forceps. Complete, in Mahogany Cabinet, £4 4*s.*

Binocular Bodies, with Rack Adjustments, adapted to the above, extra.

Polariscope, and other apparatus, can also be fitted.

J. W. DEACON, Optician, High Street, Sydenham.

PHACELIA SEED.—Strongly recommended as Bee-pasture. See *British Bee Journal*, Vol. I. p. 199. Packets 1*s.* and 2*s.* 6*d.* each, free by post from W. R. UNDERWOOD, East Thurrock Rectory, Grays, Essex.

THE

British Bee Journal,

AND BEE-KEEPER'S ADVISER.

[No. 29. Vol. III.] SEPTEMBER, 1875. [Published Monthly.]

Editorial, Notices, &c.

THE FORTHCOMING CRYSTAL PALACE SHOW.

We again present our readers, and the world at large, with the Schedule of Prizes, &c. announced for competition at the above show.

What proportions the Show will this year assume we cannot at present say, as entries will not close until after this is published; but judging from the condition of bees in our own and other apiaries which we have seen or heard of, we doubt if the show of honey will nearly approximate to that of last year. The exhibition of hives and bee-furniture, however, will not be influenced by the weather, but may be by the offer of certificates only for what last year helped so largely to make up the Show. The policy adopted last year of withholding prizes may also have some effect in preventing the exhibition of observation and collateral hives, of which there were then sufficient to choose from, but although novel in some respects, there was not 'a best' amongst them. There is, nevertheless, one feature in the Show that, in spite of previous bad weather and any errors of judgment, or caprice in the framing of the Schedule, may be made to stand prominently forth as an attraction entirely under the control of the Committee, and that is, the exhibition of manipulation with live bees. This properly managed may be made so interesting as to counterbalance any shortcomings in the honey show or fair, and sufficiently attractive to ensure a large audience, which we trust will only be allowed inside the operating-room on payment of such an entrance-fee as would possibly prevent a recurrence of the crush which last year caused the death of so many bees.

Everything in bee-keeping is interesting to the public, and with such a reserve of attraction in hand as manipulation with living bees, there need be no fear of a failure. From an educational point of view this latter is undoubtedly the most valuable feature of the Show, as its practical illustrations of driving, transferring, the use of the Extractor, &c., will convey instruction in a way more forcible and appreciable than is possible in books or papers.

SEPTEMBER.

The honey season, except in those happy bee pastures where heather abounds, may now be said to be completely over, for there can be little hope that bees will be able to get more than a bare pittance, in any other localities. With the gooseberry blossom our honey yield may be said to begin, and with that of the blackberry to close. The advent of the former always finds bee-keepers hopeful, and the latter, often rejoicing, over the luscious surplus their industrious pets have stored for them, and at the splendid condition of the bees themselves, but in this year of grace our autumnal position is not by any means encouraging. Looking back through the many miserably wet days of the past summer-time, our feelings are chiefly of regret for the untoward conditions which rendered success in any of the many phases of bee-keeping almost impossible; and, glancing forward at the coming winter, the prospect is anything but cheering.

By the accounts which we are daily receiving from all parts of the kingdom, with the exception first mentioned, the condition of apiaries generally is most disheartening; and many, induced to commence bee-keeping in the hope of adding to their already too slender incomes, have found the pursuit expensive, instead of remunerating, and are consequently in despair. In a word, stocks (as a rule) are weak and starving, at a time when they should be well provisioned for the coming season of trial, and able to withstand all its inclemencies. Those who have been enabled to dispose of their swarms, have probably made a fair profit, but the purchasers cannot be included in the same category; and as they are, in many instances, but beginners in the art, their disappointments will naturally tend to depress the popularity of the pursuit, an event which all true bee-keepers must regret.

Nevertheless it will be very unwise policy in any one to decline bee-keeping, simply because

of an occasional unfavourable season, if by any means he can possibly preserve his stocks alive; for, in the natural order of things, it can hardly be supposed that a second year of disastrous character will follow hard on the worst ever remembered. As well might a farmer forego the cultivation of his respective crops because of their failure in any particular year, or decline the future breeding of cattle or sheep, because a murrain has once nullified his efforts, and swept away his flocks and herds. There are hundreds of parallel cases, continually presenting themselves, and in every one the safest and best policy is to accept the position, and make the best of it.

How to make the best of it—is, then, now the task before us. Our stocks are in very poor condition, and not one in twenty in heatherless districts, if *left alone*, will be able to survive the coming winter; and therefore they must be aided artificially to enable them to do so. It will have been observed, that stocks which a month ago exhibited vast populations idling in the supers, or clustering outside their hives, are now so reduced that all the bees can find accommodation within doors; and this may be safely accepted as an indication that their breeding has slackened, as it usually does in proportion as the days shorten, the nights become cooler, and the incoming of stores gets gradually less. It can never be too often repeated, that the breeding of bees is governed, not by the quantity of food they actually possess, but by their daily income of honey and pollen. And again, we must remind our readers that one of the first *essentials* to safe wintering is the possession of a large proportion of *young bees* by every hive. With these facts in view, it is almost needless to point to the necessity for supplying the bees with a continuous artificial income, so that their breeding may be kept up till the latest period consistent with safety to the brood. This implies the adoption of the system we originated and promulgated, of gentle, continuous feeding—a system boldly advanced in opposition to the practice and teaching of all the great bee-masters of the time, both at home and abroad, but which is now accepted as the best possible course under almost all circumstances where feeding is necessary. Gentle, continuous feeding is stimulative; it teaches the bees to *believe* in a regular income, and disposes them to breeding and increase accordingly, while rapid and irregular supplies induce, in the one case, the filling of the cells with liquid food, which prevents breeding and is frequently the cause of dysentery, and, in the other, spasmodic excitement and robbing, and consequent *loss* of bee life. Our earliest instructions on this subject were offered to the public through the columns of the *English Mechanic and World of Science*, and extended through a considerable period; and as the directions there given are applicable now, we offer the following extract:

'*Stimulative feeding* should be performed as follows:—First give the bees half-a-pint of syrup in such a way as they can get it easily, a bottle on top is best, so that they can suck it through perforated zinc; this will give them a sort of fillip, and put them in good heart. Then, without removing the perforated zinc, procure a piece of plain zinc or tin, and punch three or four small pin-holes in it, on which place your feeding-bottle, and set the whole on the perforated zinc. By this means the bees will only be able to take the syrup very slowly; but the supply should continue for a long time, care being taken that the bees do not take in more than half-a-pint per day for the first two or three weeks, which may of course be regulated by the size and number of the holes in the plain zinc. There is very little trouble in this mode, and the bees do not get so excited by day, after a short time, as they do when food is given to them by fits and starts.'*

So thoroughly convinced are we of the excellence of the principle of slow feeding, that we are providing ourselves with feeding-bottles which will contain about six pints each, and we hope to thus minimise the labour of feeding, and be sure that once a-week will be often enough to go round the apiary. Feeding under any conditions, and in any form, cannot at this period be too quickly commenced; for to be of any value as a winter supply, the food administered must be stored and *sealed*—bottled up, as it were, in air-tight cases, as we preserve the various articles of food in tin canisters for future use. But before the preserving and sealing can be completed, there must be a time of preparation of the food, whether of man or bees; and although with both, heat is the chief agent, the latter, not being in possession of steam power, must depend on the heat generated by themselves for evaporating the excess of moisture from their food and reducing it to the *keeping* consistency; and this can in no way be so well done as when the quantity to be dealt with is very gradually acquired by the bees, and evaporated without a sensible loss of heat in themselves. Rapid feeding, by which a vast quantity of food is imported into a hive in a very short time, is, according to our theory, injurious for the time being, and preventive of the future good which the same quantity more wisely (*i. e.* gently) administered would effect. In the latter case, heat would be engendered and *kept up*, and breeding would go on, while in the former, there would be great excitement for the time being; the

* This was written and published in the spring of 1872. Our first published denunciation of rapid feeding will be found several months earlier, about the end of the summer of 1871, when the relative merits of rapid *versus gentle continuous stimulative feeding*, were very FREELY discussed in the pages of the excellent periodical above referred to.—Ed. *B. B. J.*

food would be deposited in all parts of the hive, (thereby hindering the deposition of eggs, except in a scattered, irregular way) and when the first excitement had passed, the bees would find their cells flooded with liquid, the evaporation from which carries away their heat; and finding their income suddenly cease, will destroy or consume the brood in progress, leaving the hive literally in a worse condition than before, for the labour undergone will have worn and aged the bees, and instead of receiving a corresponding benefit, they will be predisposed to disease, and dysentery will probably exterminate them.

To prevent, then, the entire loss of our stocks, the only safe course is to feed them gently and continuously while the weather will permit of their increase by breeding, and to enable them to store and *seal over* their winter supply before the cold weather renders it impossible for them to do so. Never forget that the life of a bee (not counting accidents) depends entirely upon the amount of labour which it performs, and is not a question of days; and that although old bees in late autumn may make a stock appear populous, they will all die before the spring blossoms appear, and that, often, without having been able to raise a sufficient number of successors to maintain and carry on the business of the colony through later spring vicissitudes.

Uniting Weak Stocks.—There will be found many stocks, swarms, or casts of the present year which have not sufficient comb or bees to enable them, under any circumstances, to 'stand the winter.' The few bees in such stocks are comparatively *old*, and already half worn out, so that it is useless to expect them to be able of themselves to breed a sufficient number of young ones, or to store and seal the necessary quantity of food to warrant their being allowed to remain as individual stocks; and therefore the bees of every three or four of them should be joined to such hives as contain the largest quantity of combs, so that by their united strength they may be fed up to form one good stock. The hives of comb thus cleared of bees may be set over other stocks, so that any straggling cells which may contain honey or brood may be cleared or hatched out by them.

When weak stocks are in bar-frame hives, the bees should be joined, and the best combs given to the one in which they are united, and feeding as before recommended proceeded with.

Stocks to be united are often at some distance from each other in the same garden, and such should not be united until they have been brought gradually close to each other; or when time presses, as at this season of the year, taken to a distance of a mile or more from their homes, and united at once in the new locality. When stocks are to be brought nearer to each other, or their position changed under any circumstances, in the same or an adjoining garden, it is customary to say that 'bees may be moved to a considerable distance in the line of flight,' and many often give this direction who at the same time have no idea of the meaning of the term. We therefore think a few words on the subject will not be out of place, and may be of service to those who, in following our advice, will be compelled to march their bees about in all directions.

'The Line of Flight' is that which a bee would take if it darted in a straight line from the centre of a hive through the centre of the entrance-hole and continued its course. A mere tyro in bee-keeping will know that bees do not adhere to that line, but fly to all the points of the compass, often in the teeth of the wind, which brings with it, from whichever quarter it blows, the honied odours which allure them from their homes, yet kindly bears them back again when laden with the spoils of which the wind itself was the first intelligencer.

When a hive stands alone in a garden, its line of flight is immaterial, and it may be moved a few feet, or even yards, in fine weather without causing much inconvenience, as the bees will be sure to find it again, and after a little time will not fail to mark the new locality; but supposing half-a-dozen hives to be placed in a row thus—

A B C D E F

and the removal of any or all of them to be necessary, then a right understanding of the 'line of flight' will be found most useful.

It ought to be thoroughly understood that bees, when they return laden from the fields, always seek the exact spot from which they started on the journey, as may be proved by any one moving a hive so that its entrance shall be only a few inches to the right or left of its usual position, when it will be seen that the returning bees will alight where the entrance used to be, although, in its present position, it may be distinctly visible and easy of approach, and they will be obliged to *search* for it before entering. By the same rule, then, if a hive, say B, were removed from its position to the end of the line outside A, the bees returning from their flight would come back to where B formerly stood, when, missing their hive, they would alight upon A and C, and perhaps cause fighting and loss of life; or if it were necessary to unite B with E, the diagonal movement of either towards the other would cause much confusion, but if first moved in the 'line of flight,' and afterwards made to approach each other a few yards to the rear of the line, the union could be effected without loss. Given B and E, A and C, and D and F,

to be respectively united, the plan would be to carry B and E backward in the line of flight about half the distance per day that they respectively stand from the hives nearest them in the line, and after two or three days, advance the other four at about the same rate, until B and E are well isolated from the others, when, after a short time, the respective pairs should be made to approach each other, and when together, united.

But suppose it were necessary to move the whole of the stocks a short distance to the right or left, it would then be necessary to remove them by very short stages of a few inches per day, or otherwise they would be occupying each other's places, and a regular jumble would be the consequence, causing much loss. On the other hand, if the whole number required removal to the front or rear, they might be at once removed in the line of flight to a distance equal to that of the hives from each other without danger, and with but trifling inconvenience to the bees.

BEES AT FRUIT AND FLOWER SHOWS.

The highly successful result of the exhibition of bee-manipulation at Grantham appears to have carried conviction to the minds of hitherto doubting committee-men, that bees at liberty may be exhibited without danger to visitors; and knowing full well that any and everything connected with those wondrous insects is sure to command attention, our readers will not be surprised to hear that arrangements are being made for its repetition in several localities.

Ere these lines are published, the second district exhibition will have taken place at Sandy, in Bedfordshire, on the occasion of their Annual Exhibition of Fruit, Flowers, Vegetables, &c., held in the Park of Sandy Place on Friday, August 27, by the kind permission of J. N. Foster, Esq. The third will take place,* September 2nd, in connexion with the Central Kent and Ashford Flower, Fruit, and Vegetable Show.†

The fourth, as at present arranged, will be held on the occasion of the Great Autumn Shows of the Northamptonshire Agricultural and the Stamford Floral and Horticultural Societies, in Burghley Park, on September the 15th and 16th, under the able direction of a local celebrity, J. G. Desborough, Esq., the accomplished bee-master, of St. Peter's Hill, Stamford, who has undertaken its management. Lincolnshire thus claims the honour of wedding bee-manipulation to horticulture, at Grantham, through the plucky efforts of 'Pioneer' Godfrey; and to agriculture, at Stamford, by the 'Veteran' Desborough. The Northamptonshire Agricultural Society is migratory, and it is ten years since its former Show was held at Stamford; but who shall say what will be the effect during the next ten years of its association with bees on this occasion? The effort must and will be successful; and after Grantham, Sandy, and Ashford, the practicability of these open-air exhibitions of live bees will be fully established; and, considering the immense interest everything connected with bees commands, the power of attraction they are, and the source of revenue they will become, we have little doubt but that in future, agricultural and horticultural shows will be considered incomplete without them.

Our chief object, however, in this article, is to smooth away some of the difficulties which haunt the minds of committee-men, and to satisfy the public that, properly conducted, these exhibitions are unattended with danger. It is an ascertained fact that bees do not carry their angry feelings outside the enclosure in which their hives are situated; they are only fierce in defence of their *homes*, and 'abroad in the meadows' are far less to be dreaded than the insidious gnat or blood-sucking fly, whose proboscides are often poisoned through previous contact with diseased cattle or vermin, and whose puncture sometimes inoculates with the virus of disease, causing much pain, irritation, and prolonged disfigurement. At Grantham this fact above alleged was conspicuously demonstrated. Within twenty yards of the pavilion and its enclosed forecourt wherein the exhibition took place, a large stage, with trapeze appliances, was erected, and was surrounded by an immense crowd of spectators,

* Through the smallness of the exhibition ground, and the promenade being among beautiful flower-beds, causing a difficulty in obtaining space, this show is abandoned for the present year.—Ed.

† Bees and the Flower Show, Ashford, Kent.

To the Editor of the 'Kentish Express,' Aug. 14, 1875.

Sir,—There are many bees kept in the neighbourhood of Ashford, and, as in almost every instance the old, barbarous practice of destroying them by the sulphur-pit in the autumn is the practice adopted, I have suggested to the committee of the Ashford Flower Show that an exhibition of live bees be made; and I have been enabled to secure the services of Mr. Abbott, the celebrated bee-master of Hanwell, and editor of the *British Bee Journal*, to come down and show the method adopted by modern bee-keepers, by which such marvellous results are produced, and not a bee destroyed. The committee have met my proposition in a generous spirit, and I should think that, if they charge a small sum for admission to the marquee where the exhibition will be made, they will be amply remunerated. Unfortunately the present season is one of the most unfavourable known for many years in most localities, but still I have no doubt Mr. Abbott will be able to give most valuable lessons, and, I hope, give a stimulus to bee-keeping in this neighbourhood.—I am, Sir, your obedient servant, H. Honywood Dombrain, *Vicar of Westwell.*

the skirts of which came almost up to the enclosure; and yet, although bees within the latter, and for some distance around, were flying as thickly as the flakes in a heavy snow-storm, not a single outsider made a complaint against them, or showed the slightest symptom of alarm. Inside, *i. e.* within the out-of-door enclosed area, the visitors wore veils, or not, as they pleased; but the majority, gaining confidence, were soon quite at home with the bees, and, dispensing with both veils and gloves, astonished even themselves by their boldness. Those in the pavilion were in perfect safety from the bees, being fully protected by the gauze-screen which was drawn across the open windows.

For the information of such as contemplate future exhibitions of the kind, we subjoin a plan of the arrangements of the Grantham Exhibition, substituting a tent for the pavilion then used, as being more readily available, and consequently more likely to be used. Fig. 1

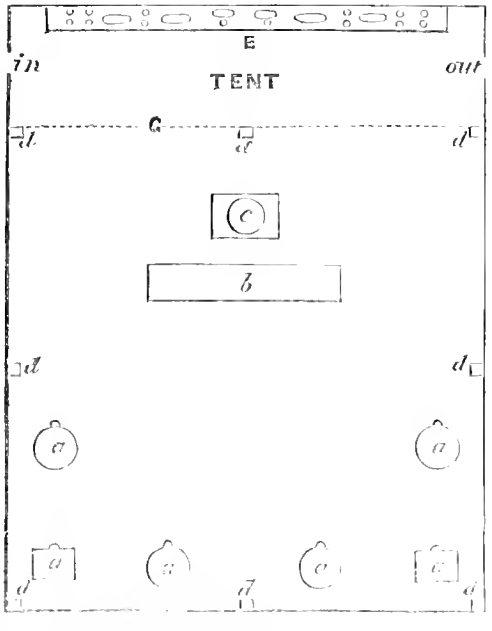


Fig. 1.

represents the tent, with curtained doorway at either end; at the back (E) is a long table, covered with exhibits, and in front is a stall-board (F) to prevent pressure against the fragile curtain in front G, fig. 2, which is fastened to H and F by laths nailed longitudinally outside them. D D, &c. are posts let into the ground, and around their outer faces canvas walling, similar to the walls of tents, was fastened, enclosing an area of about twenty yards square. Within this area *a a*, &c., are hives of bees to be operated on; *b* is the dissecting-table, and *c* the honey-extractor for use, to show how the honey may be taken from

combs whilst 'taking up' stocks under the new system, and the bees and comb preserved for future use and profit. At all times, when honey is abundant, the Extractor may be used with confidence out-of-doors, as bees will not trouble to look after honey already gathered; but in times of scarcity it should be protected against the bees, either by being kept within doors or enclosed in a gauze-tent, or cover, otherwise there will be much loss of bee-life through the bees being drowned in their own

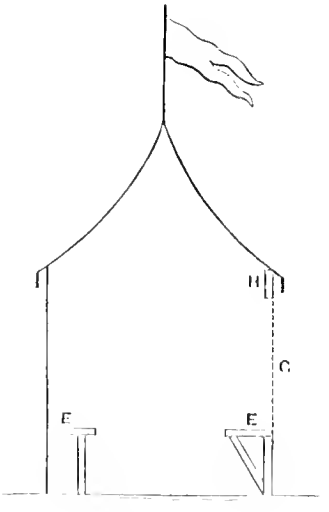


Fig. 2.

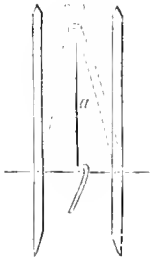


Fig. 3.

sweets. Fig. 3 is a suggestion to supersede the posts, and to avoid the necessity for digging holes in the ground, and also to prevent nailing the canvas round the enclosure. Strong stakes, in pairs, are let perpendicularly into the ground at a distance of a foot apart, the holes having been made with a crowbar; and when all are set up, and standing about seven to eight feet high, the canvas walling is laid all round in between them; the tops of each pair of stakes are then bound together, and the canvas (A) hung up between, and may be tied to the bottom of the stakes, or fastened by pegs driven into the ground. At the corners, three stakes may be used, if necessary, instead of two, forming a tripod which will stand, in any such weather as will permit the exhibition taking place with a fair chance of success. A cordon of flags outside the enclosure, with a few notices, would give greater appearance of security, and prevent nervous people approaching and getting frightened; but, judging by the Grantham Show, they are not at all necessary.

THE BEE SHOW AT SANDY, BEDS.

This took place on Thursday last, in conjunction with the District Show of Flowers, &c., as notified in another column, and was signally

successful. Want of time and space prevents a lengthened description of the exhibition, and, indeed, it is not needed, as it was a repetition of what took place at Grantham, except that the non-delivery by the Railway Company of the extractor kindly forwarded by Mr. Walton, prevented a practical exhibition of its uses. At the beginning of the manipulation there were many fears lest some of the company should be stung by the supposed irate bees, but not a single instance of the kind occurred. The neighbourhood of Sandy is *alive* with bees, many cottagers having from six to twenty stocks; and it is mournful to think that the bees of at least three out of every five will be 'sulphured' and destroyed, although there is really no honey in the hives worth taking. We transferred two doomed stocks, to show how what is usually wasted by the old method might be saved and made useful for another season. In one of the hives there were about six pounds of honey-comb, but in the other there was not one cell full of *sealed* honey, and *not a quarter of a pound* in the whole hive. The united bees and brood *filled* eight frames of a Woodbury hive; and a dozen pounds of sugar, costing less than four shillings, properly administered, will render that saved stock worth at least twenty shillings next spring. As is usual in all cases where manipulation is boldly carried on, the public soon gained confidence, and before the exhibition was nearly over the curtain put up for the protection of those within the tent was torn away by the pressure of the crowd behind it; the stall-board, recommended, (see fig. 2, p. 89) and ordered on the present occasion, not being of sufficient length or height to prevent it. At first this caused a little uneasiness, but taking courage the visitors soon destroyed it altogether (as a protection) and boldly came into the arena amongst the flying thousands. Cautions were useless, the company would come in and witness the transferring, and toward the end of it not fewer than a hundred ladies and gentlemen were enjoying *the fun*, which many of them in the morning would probably have fainted at the thought of. Perhaps to us the most gratifying observation on the day's proceedings was heard in the train whilst travelling home in the dark—it was made by a labouring man, who suddenly broke out, 'I mean to say as the properest thing I sin at that there show, was the way that feller played with them bees.' Some Ligurians in Unicomb hives were much admired, the queen being an object of great interest.

BEES FEEDING ENCAGED QUEENS.

An old adage says, 'There is no rule without an exception,' and this is particularly true of bees in most things; but in the case of bees feeding alien queens encaged, the exception, as far as our experience has proved, is most interesting; and a knowledge of it will, we trust, prevent many mishaps during the ensuing months, when, in consequence of the low price of Ligurian queens, their introduction to alien stocks will be most extensively practised.

We have Ligurianized more than a hundred black stocks, by the substitution of Ligurian for black queens, after the manner described in the June number of the *Journal*, p. 25, with only one failure, which it is only reasonable to believe was a case of natural death. We except one instance where the queen was forgotten and left in the cage, until the bees had swarmed, after hatching a queen for themselves; and one other, where the golden beauty had been left for fifteen days in the cage, and was found alive, the bees having fed her during the whole of that period, but on her release she fell a victim, most probably, to the young queen which had been hatched in the meantime. These latter cases, although affording valuable experience, do not militate in any way against the Raynor principle of queen introduction, but tends rather to fortify it. There are, however, certain conditions not hitherto named, under which, from our short yet sharp experience, we believe encaged queens are as a rule neglected by the stocks upon which they are sought to be imposed, and in which they are left to starve in their cages. Our first awakening to these conditions arose from an attempt to establish a nucleus, with the bees which arrived from Italy with a large number of imported queens, the whole of which were united and placed in a small hive containing four Woodbury combs and a good supply of honey; and to give them an early start, and keep them together, an attempt was made to introduce to them one of the deposed black queens; but on going to release her from her cage she was found dead: the second and third attempts were equally futile; and thinking there was something in the bees being a heterogeneous lot, we repeated the experiment nine times, occupying near twenty days, but in each case the result was the same. A honied queen was then dropped amongst them, but they hugged her to death; a sealed queen-cell they however respected, and so became provided with a queen.

In every instance where queens were offered to stocks, which had become queenless after swarming, they were allowed to starve in their honeyless cages; and in stocks which had acquired fertile workers, death from neglect was the inevitable result of the close imprisonment of the queens offered to them.

Many other facts, and sundry circumstances which had been puzzles in bygone days, but are

now explicable, have forced upon us the conviction, that *unless there be hatching brood in a hive the safe introduction of an alien queen by the honeyless cage, cannot be relied on.* We do not make a dogmatic assertion, nevertheless we firmly believe that in honeyless cages, the alien queens confined depend, for their supply of food, solely upon the newly hatched nursing bees. It is well known that the *young* bees *are* the nurses, and that until a hive contains a large number of them rapid breeding will not be carried on, simply because of the paucity of *feeders*; and our suggestion is, that in their absence the queens are allowed to starve in their cages. This idea in no way impinges on the principle of the Raynor cage (in which we have every confidence), which insists on the caging of the rightful sovereign prior to her substitution by the Ligurian queen, and that sufficiently implies the presence of brood, and the hatching bees which we are led to consider indispensable. We therefore advise those who intend to introduce queens to queenless stocks, to take care that the queens when caged in the hive, shall be so placed as to be able to obtain their honey supply without needing assistance.

INTRODUCING QUEENS TO QUEENLESS STOCKS.

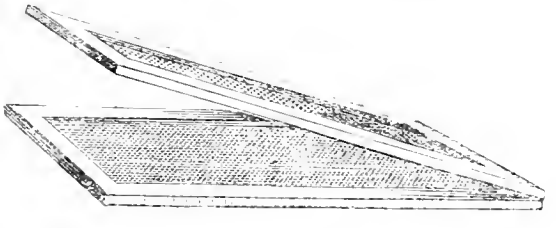
The discovery of a queenless stock in a hive is an almost every-day occurrence, when the usual first impulse is to purchase a Ligurian queen to place at the head of it, it being considered a *capital opportunity* for Ligurianising. Now our practice when we discover a queenless stock is to give it a queen from a strong one, and introduce the Ligurian queen to the latter, so that her powers may have full scope. A great deal of the outcry made against the Ligurians arises from the fact that the queens have been put into hives in which they have had no opportunity for displaying their powers to advantage. A queen under any conditions can only produce as many young bees as her subjects can rear; and in a queenless stock there being few, or no young bees present, the nursing department is necessarily on a very limited scale; and as three weeks *must* elapse before there can be any births in the hive, during which time there will have been *many deaths*, the stock is generally a long time recovering its strength, and, if late in the season, will probably not recover at all. This is a very ordinary case, and with ordinary queens is not specially noticed, but when expense has been incurred in the purchase of a Ligurian queen whose powers of breeding are 'said to be enormous,' (?) it assumes an aspect of noticeable importance, the collapse of such a stock is recorded, and the fact published to the disadvantage of the Ligurian character generally, whereas the fault, if any there be, usually lies at the door of the bee-keeper.

Another method of queening a motherless hive, and giving it *a chance*, often practicable, and generally safe, is by the exchange of its population for that of a full hive, *i.e.* drive out all the bees from a strong hive, and all the queenless bees from *their* hive, then give the hive of *combs and brood* to the latter, and the broodless hive of combs to the bees of the former; stimulate the stock last mentioned by gentle, continuous feeding, and to the still queenless stock give a Ligurian queen, or, if the season be suitable and the brood pure, let them raise one for themselves from the larvæ in the combs just given to them.

By this mode a Ligurian queen will have the opportunity of displaying her powers, as young bees will be hatching daily, which will attend both to her, and her brood. Putting a Ligurian queen into a weak hive, is about as resonable a proceeding as employing a powerful steam-tug to tow a tiny canoe.

TRANSFERRING.

When transferring from skeps to frame-hives, a handy frame, which will permit of full command of the comb placed upon it for the purposes of manipulation, yet will prevent the necessity for continually handling such combs, must be welcome to all bee-keepers. By the aid of the double frame here engraved (an

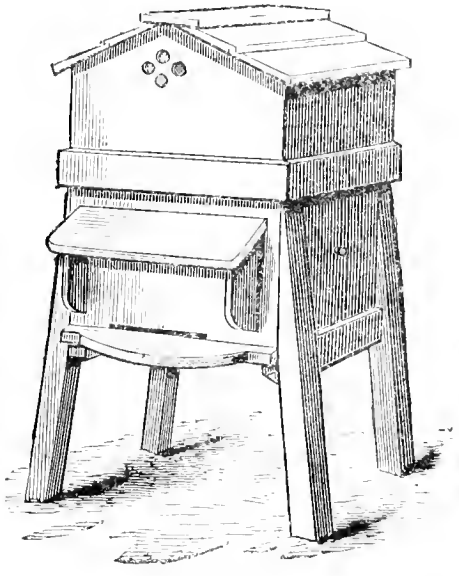


invention of last year) a comb, after it has been lifted from a skep and placed in it, may have its cells unsealed, and be relieved of its honey by the Extractor, fitted into a hive-frame, tied in or secured by wire-staples (as suggested in last month's *Journal*), and placed in its new hive, without its having been once handled. The frame will be easily understood; it is composed of two wooden oblong frames, like those in which children's school-slates are fixed. On one side of each of these wire-work is fastened, the two frames are then hinged together; and as they are each of half an inch in thickness, there is just sufficient room for a comb to lie comfortably between the wires, when they (the frames) are shut together. Combs between the

folded frames may be turned over or about in any direction, according as it may be necessary to unseal, reverse, or cut them, to fit into the frames for the new hive; and, what is of greater importance, they may be put into the Extractor *with* the frames, and relieved of their honey, without the danger of breakage which attends that operation when the combs are put into the revolving cage with the hand.

OUR FRAME-BAR HIVE.

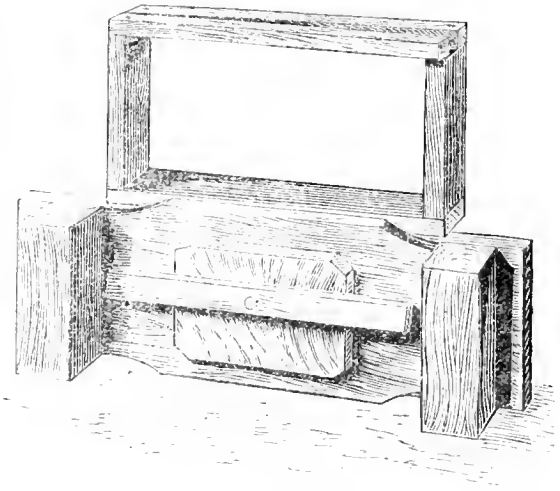
Before the Judges, to be appointed for the forthcoming Crystal Palace Show, bring the newest and most approved hive into prominence, and render reference to the above a possible absurdity, we beg to offer an engraving of



it, as manufactured by Lee of Bagshot. Formerly it was made with single walls, with casings, for economy's sake, but the machinery employed by Mr. Lee enabled him to make it double-walled, at less cost than before. The description of it will be found running through Vol. I. of *Journal*.

BLOCK FOR SECTIONAL SUPERS.

This useful little article is of simple construction. A piece of three-quarter inch board is taken, four or more inches longer and half an inch wider than the outside length and width the sections are to be; and near each of its ends is to be screwed a pair of hard wood two inches square, and of length equal to the width of the first-mentioned piece of board. In the middle, between the two square pieces, a strip is screwed by one screw to a small block in its centre, so that when the ends of the super sections are put into the frame, it may be made to jam them closely against the square blocks at the frame ends. The top of super section is now put on and nailed, and the whole, *if turned over*, will offer the bottom of the section to be similarly



treated. When the super sections have their top bars in two parts, as we recommend for the insertion of the wax strip, this little frame-block renders the fixing of the latter a very easy task. As represented, *a section* is shown above the *block*.

WHAT NEXT?

A very extensive deposit of wild honey has been discovered in California. As the workmen on the Cajon Pass were hauling over some rocks they came across a deposit of honey, and taking a pole and running it into the mountain were surprised to find no bottom. They got a longer pole, some 20 ft. in length, and were unable to touch the bottom with that. Upon withdrawing the pole the honey began to run out, and soon tubs, buckets, and two barrels were filled, and still it flowed. Some parties came in town and loaded up with barrels, and propose to make a business of it. They put in a charge of powder and blew off a portion of the rock, which disclosed tons upon tons of honey. An informant states that after exploring it from below to where the bees were found to enter, it was found to be one-fourth of a mile, and it is his opinion that the whole cavity is filled with honey. He estimates over 100 tons in sight, and believes that 1000 tons would not be an unfair estimate. This immense deposit cannot be equalled by any ever found. According to the above estimate, it would take every barrel and hogshead in San Bernardino to hold it.—*American.*

A young swarm builds worker-combs exclusively at first. Weak swarms seldom build drone-combs the first year.

It is an error to say that queens and drones will not feed themselves. I have often seen queens eating honey out of the open cells; and have noticed drones doing so hundreds of times.

Correspondence.

*** These columns are open to Subscribers, so that their queries, replies, correspondence, and experiences, may be fully and faithfully recorded; and for the discussion of all theories and systems in Bee-culture, and of the relative merits of all hives and appurtenances, that the truth regarding them may be ascertained. The Editor, therefore, must not be expected to coincide with all the views expressed by the various writers. All Correspondence is addressed to the Editor.*

PROPOSED COUNTY ASSOCIATIONS OF BEE-KEEPERS.

The success of the exhibition at Grantham must have led hundreds of your readers to see how much similar undertakings in various parts of the country would do to spread a knowledge of bees and bee-keeping. Can nothing be done to form local societies of bee-keepers? Perhaps the managers of the Central Association find the Crystal Palace Bee Show as much as they can manage, and have no time to think about the formation of provincial clubs; but as all country apiarians cannot go to Sydenham in September, and as thousands of those who do something in the honey line do not even know anything about the Show or the Association, I think local effort might, with great advantage, be brought to bear. I would, therefore, venture to make the following suggestions:—

1. That steps be taken for opening communication between the principal bee-keepers of each county, or such groups of counties as could conveniently act together. This could be done by publishing in the *Journal* a list of those willing to join such associations, with full names and addresses.

2. That when a sufficient number of names have been thus obtained, a meeting be held at some convenient place in each district for the appointment of a committee, with chairman, treasurer, and secretary.

3. That the objects of the local societies be the same as those of the Central Association—the management and improvement of bee-culture.

Subscriptions, rules, and other matters of detail could easily be settled at the district meetings. I make this suggestion for several reasons. In the first place, I think it would excite greater interest in the rural districts if a number of bee-keepers could agree as to some method of taking united action. They could exhibit at local flower-shows, and thus shed a flood of light upon those who keep bees on the old grope-in-the-dark plan. Moreover, they would probably be able to offer prizes for honey, &c., even if the sums were small, where nothing is now done in that direction. Then, again, they could spread information on their favourite branch of study by means of lectures and cheap literature.

Should any of your readers who reside in Somerset or Dorset think my suggestions worth trying, I shall be happy to co-operate.—C. T.

[Our Correspondent's suggestion has the right ring in it, and we shall be happy to second any efforts that may be made in the direction indicated; at the same time we fear that unless a set of rallying-points be first formed, few associations will be established. We therefore suggest that those anxious for the formation of bee-clubs in their respective localities, should volunteer to act as secretaries for the time being, and invite the co-operation and assistance of the bee-keepers in their neighbourhood. We shall be glad to publish a list of such names.—Ed.]

PROPOSED BEE COMPANY.

It has often been truly remarked, that in no country in the world is bee-keeping so much neglected as in this. Where one hive is kept in England, there are a thousand on some parts of the Continent, and apiarian science takes a prominent part amongst the many branches of national industry. Even in Poland, which possesses a climate more humid, damp, and unhealthy than our own, bee-keeping is carried on to a large extent. Thousands of cottages may be seen whose owners possess from 50 to 100 hives, whilst larger proprietors own as many as 10,000 each. I am quoting now from a little work published in the year 1845 in London by a Pole, Dobrogost Chylinski; and in continuation he says: 'There are some farmers who collect every year more than 200 barrels of fine honey, each barrel weighing from 400 to 500 lbs., and this exclusive of wax.' I might go on and multiply this list considerably, and show how much we are behind Russia, America, Germany, and many other countries in apiarian science, but to do so would only occupy too much of your valuable space. It is an admitted fact that it is so, and that where we keep one hive now, we ought to keep 50 or 100. Now, if such results can be obtained in a country like Poland, on, or partly on, the old system of burning, what might be done in Britain, with our thousands of acres of heather, where hundreds of tons of honey are annually wasted for want of bees to collect it? What I wish to bring before your readers is, the possibility of forming a company, and establishing a monster apiary in some good locality—begin, say, with a capital of 500*l.* to 1000*l.* in 1*l.* shares, and start an apiary of 500 hives, with an experienced apiarian as manager under a board of directors. It would, of course, take some little time to get the apiary up to working order to pay a dividend; but once let the thing be fairly started, and ultimate success would be certain. Once show the public a published dividend of at least 10 or 15 per cent, and it would not be long before every share would be bought up.

I see no reason why the British Bee-keepers' Association should not have an apiary of its own, both for profit and experimental purposes. I merely throw out these suggestions for what they are worth, and should be glad to see the subject discussed, both in 'our *Journal*' and at the next meeting of the British Bee-keepers' Association, and can only add that if my suggestion should be adopted, I should be glad, not only to take a few shares in the undertaking, but also to subscribe towards the preliminary expenses.—O. Poole.

THE COMING SHOW.

Many engagements have prevented my carrying out my intention of writing to you before a few thoughts for our valuable *Journal*. But my interest

in apiculture has not slackened in the least; and I have found much pleasure in reading the effusions of your many correspondents; and trust to add my mite of experience at a more convenient season.

Still I will thank you to allow me, at the suggestion of the Hon. and Rev. H. Bligh, as contained in a former number of the *Journal*, to suggest that in determining the wisdom of the award of prizes to the exhibitors as made by the Judges you may think fit to select, that if there should be any difference of opinion between the Secretary and Committee of the Association and the Judges, that it will only be an act of courtesy to the Judges to consult them first before any alteration of their decision is made. I would also suggest that it would be well if the Committee and the Judges could have a little conversation before the work of the Judges commenced, as their opinions may vary as to the meaning of the Committee in respect to the conditions upon which prizes are to be awarded. I also think it would be wise to appoint more Judges and give them less to do, that they may not be so hurried in their decisions, as to render it liable, that they may pass such judgments that with a more patient consideration of each case they would not have passed. I suggested at the last show to our worthy Secretary the desirability of this. I do not wonder that under the circumstances yourself and others should have differed in opinion as to the wisdom of the awards. And those gentlemen who may have thought the merits of their exhibits were overlooked, must try to give the Judges and the Committee credit for a desire to do justice to all. But the merits of their exhibits not being obvious upon a hurried examination, and no person being present to point them out, or any written description attached to the articles to awaken the attention of the Judges to the special merits claimed, they need not be surprised that in some few instances meritorious exhibits failed to secure the prizes they deserved.

But I must demur, sir, to the criticisms of those gentlemen who found fault with Starling's improved honey-slinger, and contrasted it with one the principle of which is so defective, that one part of the comb, being revolved, passes a distance, and consequently at a rapidity, twelve times that of another part of the same comb, thus rendering the complete extraction of the honey very doubtful. And as to the objection to the height of the machine, although the lower the centre of gravity the less the oscillation, still, if we must have the advantage of running off the honey without lifting the machine, it must be borne with, or may be avoided by having those made without stands by the same firm. I extracted the contents of more than thirty straw hives last autumn with one made by the same maker, and found it work well, throwing out quite clean all the *fluid honey*, and, when carefully revolved, all the unsealed brood remained in the cells; and this year I have tried one of his machines with further improvements, by which the current of air is moderated, while the swiftness of the motion is the same and the extraction of honey as complete, and which I have no doubt is an advantage to the unsealed brood revolving in the comb.

Trusting that the next show of honey, &c. at the Crystal Palace will far out-rival the past, great as its success was; and bad as the reports are from some sources, I am not altogether without hope.—Alpha, *Grantham.*

DEATH TO WASPS.

A correspondent of a Wiltshire paper writes as follows:—'The Earl of Radnor has for many years paid 1*s.* per nest for wasps, and 2*s.* per nest for hornets—the queen, in each case, being invariably produced with the nests. It is a kind of harvest for the men, the "wasping season be." Upon referring to the books, we find that the sum of 506*l.* 2*s.* has been paid for the destruction of wasps and hornets within the last twelve years, being on an average 42*l.* 3*s.* 6*d.* per year. It is to be regretted that gentlemen whose estates are adjoining the noble earl's do not do likewise.' The use of wasps is a social problem not easily solved, and the above is an example worthy of being followed.

BACK NUMBERS OF THE *JOURNAL.*

I am delighted with the *Bee Journal*, of the existence of which I but recently heard, and shall be glad to purchase all the back numbers. If they can be supplied, kindly say by whom.—Novice.

[We have a few numbers of Vol. II. bound, but have none of Vol. I.—shall be glad to purchase any spare sets our clubs or subscribers may have on hand.—Ed.]

HAS THE BEE-KEEPERS' ASSOCIATION SHOWN ITSELF USEFUL?

I have just paid my subscription to the British Bee-keepers' Association, and I never paid a subscription more grudgingly. I am one who looks for a return for money spent either in pleasure or profit, as the case may be; from the Association I have received neither the one nor the other. It is sad to think how much the Association might have done in these two seasons, and to find that it has done nothing. Surely no one will say that the management of an Annual Show is all that can be looked for from a Society which invites subscriptions from every parish in England. I shall be very surprised to find that the number of members has increased twofold since the list was published in September, 1874; and yet, with any decent management and practical programme, I feel sure the increase of members would have been a hundredfold. I have said all the Society has done, is the management of the Crystal Palace Show. I must not forget the issue of the Pamphlet to 10,000 gentry of England. Dare any one say that that was a success? I maintain it to have been a wretched failure and a waste of near 40*l.*—ill-conceived and badly executed. Month by month I have looked through your *Journal* for information on the subject of the benefit the Society has obtained from the issue of it. The *Journal* seems to me to be very silent about the Association altogether; yet it is but right that the members should have some certain information re-

specting this business. It was no small thing to spend 40*l.* of a Society with so small an income as ours has. The Committee stand seriously committed respecting this matter. It ought not to be allowed to be passed over without some comment: and though I would have all bee-keepers be—as Izaak Walton said anglers are—peaceable men, yet it is only just to ourselves as members of the Association to ask for an explanation, since none has been offered, why so much money was spent upon so childish an effusion. It has been my duty to read tracts by the hundred, but I never put one down with a greater feeling of disappointment than I did that which we all looked to to do such great things to revive our art among our countrymen. As I cannot say what good the Bee-keepers' Association does, I cannot persuade any one to join it. Not to trespass too much on your valuable space, I would say thus much: A golden opportunity is slipping by. Bee-keeping will flourish whether the Association helps it to do so or not. If the London Association will do nothing, country ones will arise and take the business out of their hands; but it is sad to think that we country folk must work independently of a head centre. Surely the time is not yet past. The Committee might easily, and at once, make up for time lost. A spirited programme of a scheme for the formation of branch associations all over England in connexion with, and paying tribute to, the Central Society, would call forth a ready response from those willing to become local secretaries. In some such way as this the British Bee-keepers' Association would take its proper position as chief of all the associations in this country. Working on as it does at present, it will soon cease to deserve any other name than the Committee of Management of the Crystal Palace Bee Show.—T. W. Goddard, *Swithland Rectory, Loughborough, Aug.* 27, 1875.

HONEY HARVEST IN SOUTH DEVON.

Although in my own apiary I have not so much to complain of as is the case with my neighbours, yet it has decidedly been a very poor season. It is, however, strange that whilst some hives, very strong in bees from the commencement of honey-gathering, have stored little or nothing, one or two others amongst them, by no means so promising, have given fine heavy supers. I can mention two or three instances; one in my own apiary, and others in those of near neighbours. A common cottage-hive, tenanted by a small stray unowned swarm of 1873, has delighted me greatly by filling a large octagon super, the gross weight being 93 lbs., and the net 86 lbs. of beautiful comb and honey, every particle gathered by this one stock from the flowers around; and yet, other strong stocks, overburdened with tenants, have only given shallow supers, not all of them full of comb.

In another instance, out of eight stocks, only one has done anything; and that hive has given a fine box-super of 40 lbs. net. It was an old hive, which last year was at a low ebb. And again, another bee-keeper in our town has a fine glass of honey worked by a *swarm* of this year, the weight of which I have not been able to ascertain; the other hives having done very little indeed. All this has puzzled me exceedingly; and I cannot imagine why, if one hive could do so well, others, so greatly crowded with bees, were not capable of doing equally well, not having swarmed.

I am now packing my glass of honey for the Show, and purpose driving out the tenants at once from the stock-hive, and then uniting them to an adjoining hive, so that the identical stock on which the glass was worked may accompany it.

I have just tried the weights, all round, of my hives, and am glad to find that the majority of them are sufficiently supplied with food for the winter; others must be fed liberally; but I do not fear carrying all fifteen throughout the winter, which was also the case in the winter of 1874.—George Fox.

BEE PROSPECTS, 1875.

The season may now be called *over*, in this district, as we do not possess the advantage of that excellent second harvest, the heather; so we may again begin to judge what are our honey prospects. My experience leads me to the conclusion that ours is not a good neighbourhood for profitable bee-keeping. I have driven twenty stocks for myself and neighbours, and have not found more than 14 lbs. in the heaviest, and the greater part not more than 10 lbs. My supers have not yielded any honey, although they have been choked up with bees all the summer.

I am anxious to know how my brother amateurs have fared in other districts; also from others more experienced, whose pens have laid dormant of late, a report of the proceedings would be very acceptable.

Our district is about three parts arable and one part pasture, with very little woodland, and a fair quantity of orchard-trees.—Mid-Lincolnshire.

THE HONEY HARVEST.

The honey harvest in this part of the county of Kent is very bad, and the bees can only just keep themselves. I drove a stock about two weeks ago, and to my surprise I found only about two pounds of honey in it. I also drove one for a friend of mine on Monday, the 23rd, and I should think there cannot be more than seven or eight pounds of honey in it, and these are in a far better situation than mine. If this is the case in every part of England, what is to become of the poor bees without feeding?—W. C. Punnett, F.M.S., *Tonbridge, August 24th*, 1875.

HONEY-HARVEST—WAX-SHEETS—FORTHCOMING SHOW.

The hopes and anticipations indulged in of a splendid honey-harvest this year, springing from the glorious weather in the merry month of May and early part of June, have been sadly marred by the unusual downpour. In many heatherless districts the season, it is to be feared, is altogether lost.

As regards this locality, I cannot but congratulate myself on the results in my apiary, all things considered. My old stocks have given a fair average

of 31 lbs. of super honeycomb. The heaviest super of the year weighed when removed on July 18 54½ lbs. This is from my oldest stock, in a box hive 14½ inches square, and 12 inches high. It has never been disturbed since it was placed on the stand. Unfortunately two of the central combs are slightly discoloured at bottom by brood and pollen. The next best super weighs 41½ lbs. This is from a stock in a bee-house of six years' standing. The combs are beautifully finished, and of a splendid purity, averaging 2¼ inches thick.

One of my stocks of 'fumigated bees' (referred to more at length in a previous communication) unfortunately lost its queen early in April. Another sovereign was introduced as soon as one could be obtained, but, as may be expected, in the interim the bees had dwindled down to a mere handful; and though the colony is now strong and populous, there will be no surplus from it this year. The sister stock filled a super of 29½ lbs. in three weeks, also a bell-glass of 63¾ lbs. But for the loss of the queen in the former, these would have given a large profit. As it is, however, I am amply repaid for the outlay last autumn.

I am somewhat surprised to hear that certain of our contributors object to the wax-sheet for guides. Having given it a fair trial this summer, I cannot but regard it in the light of a really indispensable requisite to the apiary. Altogether I have used it in thirteen hives and supers, and in every instance the combs are built exactly where intended, and well secured to the top bar of frame. As an experiment, the frames in one stock hive were furnished with strips of wax-sheet not impressed, and the results are in no wise different from the others in which the sheet is impressed in the usual style. Query, is it necessary to impress the sheet at all?

In common with certain other members of the Association, I am of opinion that the Committee would do well to give due weight to the suggestions in Mr. Symington's able article on our forthcoming Show. In the interests of exhibitors I would also reiterate what I have expressed in a former article, videlicet, that each exhibitor be allowed personally to explain to the Judges the merits of his exhibits. At our last Show this restriction gave rise to some little dissatisfaction, many really deserving exhibits being passed over entirely without remark.—Alfred Rusbridge, *Sidlesham, Chichester, Aug. 12th.*

A HOLIDAY AMONG THE BEES.

As this is the age of pleasure-seeking and holiday-making, it may not be altogether out of place to give the readers of the *British Bee Journal* a short account of a holiday I spent among the (crack) bee-keepers in this northern hemisphere. Well, to proceed. I first called on Mr. Gordon, Mains of Gartly, who was waiting to accompany me. This gentleman only commenced bee-keeping three years ago. He has already a well-stocked apiary of strong and large hives (Pettigrew's). His largest one measures 24 in. by 14 in. Received a swarm on 5th July, and weighed last week—113 lbs. He fully expects this hive will rise to 160 lbs., should the weather prove favourable for honey-gathering. Mr. Gordon is a practical bee-master, fully appreciates the advantages of large hives, and seems determined to give them a fair trial. His apiary is well sheltered from high winds, and seems to be in the midst of a very rich, honey-yielding district. Mr. Gordon is making rapid progress as a bee-master, and the readers of the *British Bee Journal* may expect to hear more about this gentleman's accomplishments.

We then started for Cairnie, and after a drive of ten miles, arrived at Mr. Shearer's. This gentleman is an enthusiastic bee-keeper, has a good selection of large and strong hives, and seems to be no novice in the art of supering. We were shown several well-filled supers of beautiful honey-comb, also a considerable quantity of first-class run-honey taken from a driven stock. Mr. Shearer's apiary cannot be said to have the same advantages in a honey point of view as the former gentleman's, not being in such a favourable locality. He had several of his hives taken to the heather, a distance of about one and a half miles. He informed us that very few of the worker bees ever came back to their old stands, while a great number of drones generally did, and were lost. Certainly a novel drone-trap.

After spending a happy hour with Mr. Shearer, we started for Mr. Cockburn, Shenwell. This gentleman has gained considerable popularity as a bee-master. He is the only person in the north of Scotland, so far as we are aware, who has attempted a work on bees. His publication is rather small, but contains plain, practical instructions for an amateur. He has a well-stocked apiary of large and strong hives. We were shown one which had gathered as much as 10 lbs. in one day. Mr. Cockburn practises artificial swarming, and during our conversation he related the following incident, which to me seemed singular, and worthy of further experiment.

About the middle of June he swarmed a stock artificially, and on examining it found the bees had already prepared to swarm, having four royal cells formed, with an egg in each cell. The swarm only remained two days in their new habitation, when numbers were seen flying back to the parent-hive, and on examining the hive the queen was found dead on the floor-board. Mr. Cockburn immediately removed the queen, and put all the bees back, and put on a super. The super was taken off in about ten days, quite full, and on the seventeenth day from their first departure they swarmed. Our bee-master was determined to avail himself of their surplus queens, and on turning up the hive for that purpose, was pleased to find they had formed other three royal cells. But judge of his surprise when, on cutting out the three last formed, he found they contained simply worker-bees.* The other three contained perfect queens.

* This, if correctly observed, is an extraordinary case. As a rule, bees can raise queens from larvæ, and thus shorten the natural period required for the production of a queen from an egg, by five or six days; and why, after an absence of only two days, they failed in effecting the necessary changes in the nature of the inmates of their queen-cells, is a mystery which we cannot fathom without further particulars.—Ed.

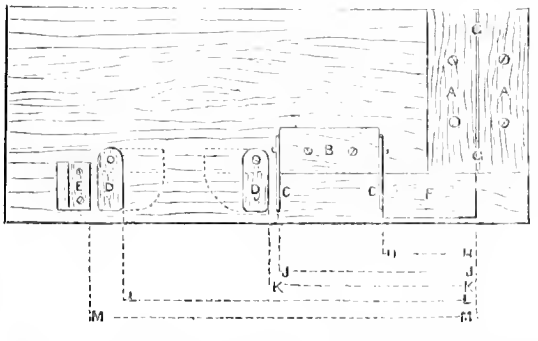
Now, Mr. Editor, I have little doubt but you will be able to solve the difficulty, although we could not altogether see through it. We came to this conclusion, that the bees had raised other three royal cells immediately after their return to the hive, and the eggs at that time being two days old, were incapable of becoming perfect queens. Whether or not we arrived at a proper conclusion you will be able to inform us, I have little doubt.

But I must stop, as I have already trespassed too far on your space. I may mention that none of the above-named gentlemen possess a bar-frame hive, but they intend making them and introducing them next season; and I have no doubt, Mr. Editor, but you will find them willing subscribers to our welcome *Journal*, copies of which I have been circulating. I returned late at night, having spent a most enjoyable day amongst the bees and their masters, and glad to learn that other people's bees were as good stingers as my own.—A. J. Anderson, *Tullochlys, Clatt, Aberdeenshire.*

FRAME-CUTTING GAUGE.

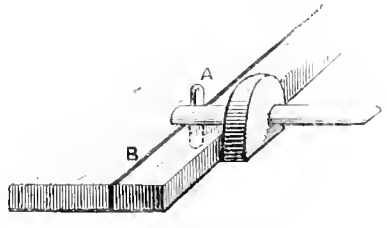
Having derived great benefit from your frame-block, in the great saving of time and trouble, perhaps you may consider the enclosed sketch of my frame-cutting gauge not without its good points, in the saving of time, and its use in rendering all frames in the apiary perfectly interchangeable, as well as a certainty in having all the various pieces perfectly at right angles and square. I may, perhaps, be running over ground already trodden, but I have not myself seen anything of the kind previously, and as such beg to offer it for your consideration. It is extremely simple to make, having taken me about two hours from materials on hand.

The base-board is of 1-inch boarding, 9 inches wide,



and about 2 feet long; the blocks A A are preferably of beech, with room for the fine tenon saw to work between them. These should be perfectly squared up, and about 2 inches square and 4 inches long each, firmly screwed to the base. The block B must be of a length to suit the depth of side pieces to frame, and of a size about 2 inches × 1. The guides C C 3″ × 1″ are made from sheet zinc, about $\frac{1}{16}$-in. thick, with semicircular end where screw goes through, to allow of its being moved up out of the way when longer lengths are required; B is then screwed on to the base perfectly at right angles, with the saw line G G. D D are made from waste pieces of frame-bars, and fixed as shown; one when cutting half top-bars for nucleus hive bar-frames, and the other for length of bottom bar for ordinary frame. E is a splayed block for top bar. Of course these gauges must be fixed to suit the various requirements of bee-keepers. H H, for sides of sectional supers; J J, top and bottom of sectional supers, also depth of side-pieces for bar-frames; K K, half length of top bar for nucleus hive, allowing 1 inch for cutting of tongue for the twin frame; L L, length of bottom bar; and M M, length of top bar. As there will, I fancy, from the very unseasonable weather we have been having, be many weak stocks, I am looking forward to some suggestions on the subject of double and treble hives for wintering them in, as I myself have several, as to what time to make the change and general manipulation, so as to lose as few as possible from flying back to their old position.—W. Freeman, *Sevenoaks, July 26th*, 1875.

[The above is a very simple arrangement of moveable distance-blocks, and would be exceedingly useful when the lath for frame-bars, ends, or rails, is obtained in long lengths; but in our method of frame-making the process is reversed. We take boards of the exact thicknesses required for the several kinds of frames, and of any width: these boards are marked off to the lengths required for top bars, bottom rails, or frame ends, as the case may be. Every length is sawn perfectly 'square' at its ends, and each of its edges being planed true it is ready for the cutting gauge. This instrument is a great labour-



saver in an amateur carpenter's shop, when there is no bench-saw to 'run off' narrow strips. It is very much like an ordinary marking-gauge, but instead of a steel point it has a piece of knife-blade, somewhat like a lancet, which can be set to cut any depth, to suit the thickness of the material, or the strength of the operator. It should be used with both hands alternately, on both edges of the thin boards; and when the operator has learned to avoid being 'run out' by crooked grain in the wood, he may 'rub' off the strips, so as to literally create a 'rattle' by their falling.—Ed.]

SLOW FEEDING.

Allow me to add my testimony on the advantages stocks derive from slow and continuous feeding. In May last I had two stocks which I thought at the time were scarcely worth saving. However, I gave them a comb each containing brood, and commenced to feed through one hole. The result was surprising. In June I joined a Ligurian queen, and they are now the strongest stocks in my apiary. A very clean and simple plan of regulating feeding is as follows:—Take a block of wood, and bore a hole through it large enough to admit the neck of the bottle you intend using, keeping the same a quarter of an inch above the frames. Now fill the bottle with syrup, and tie a piece of tin or lead-foil over the mouth.

Puncture as many holes as you require with a pin, and invert the whole over the hive; or a large hole may be burnt throught the cork, and the tin-foil tied over that, which will save the trouble of untying it every time you fill the bottle.—O. Poole.

FEEDING SWARMS.

I think I am in duty bound for myself, as well as for the public at large, to thank you for the idea of gentle feeding set down in the *British Bee Journal*. I purchased a Carr Stewarton Hive and swarm of Ligurian bees in the middle of last month, and with very little care and attention on my part (for I have no time to *waste* on them), they have completely filled both boxes with comb and brood, all workers, save about a hand's breadth of drone-cells in one frame; and this I attribute to having fed them, under your direction, gently and continuously, and this during the worst season I ever have known. I have also been attending to two swarms belonging to some friends in the village, and they have done quite as well, having been fed in the same way. I also approve of the much-abused quilt, which, thanks to your persuasion, I tried last winter, and found to answer admirably, and quite to my expectation; and having tried both quilt and crown-board, I can speak from experience that the hive that was covered with the quilt was much more forward in the spring than that which was covered with a crown-board. Trusting that the *Bee Journal* will prosper, and continue a help to all bee-keepers, for I am sure it is most valuable to all interested in the welfare of our little friends the 'busy bees,' and there are few that can *afford* to dispense with its teachings.—One of Ours, *Ealing, July* 18, 1875.

STING-POISON.

In reference to your correspondent, Mr. Gee, on sting-poison, his description is exactly that of the way in which it affects me, except that I commence by sneezing, perhaps fifty times running as rapidly as possible; in addition to the sal-volatile, I would advise cold brandy and water to be taken, also to bathe with ammonia and water any parts where the inflammation is particularly painful.—H. M.

PACKING HONEY-COMBS.

To those who are wishing to sell super honey at the coming fair, I would suggest, that they do up each comb in white paper, after the manner of a parcel, with the weight, price by lb., and a guarantee for pure honey-comb, written outside. I constantly keep comb in this way, either for use in the winter, or for giving away, or sending away to friends; and from 1 lb. to 7 or 8 lbs. can be carried without in the least soiling the hands; and I am told that when packed in boxes with paper-shavings, it arrives in excellent order and unbruised. Carefully remove the bar with its comb on to a large dish. Cut with a sharp knife close to the bar, and lay the comb on to a sheet of foolscap paper—two sheets will be required for a large comb. Dip the hands in water and wipe them; fold the paper over the comb, and seal it up immediately. If done quickly and neatly, very little honey will be wasted. It is well to put another outer covering of paper on each package and seal that up, to entirely prevent any honey oozing out. For packing in boxes to go by train, I use newspapers, cut up into quarter of an inch wide strips, scrunched with the hands, and pulled about, till it becomes a soft, elastic packing material: plenty of this should be put between each parcel, and, gently pressed into every corner and crevice of the box, it then holds the parcels of honey quite secure.—A Lady Bee-Keeper.

TRANSFERRING EGGS FROM ONE COMB TO ANOTHER.

The following facts may be of interest to some of your readers, and more particularly to 'A Lanarkshire Bee-keeper.' I recently found that one of my hives was queenless (or at least eggless), and contained several royal cells almost ripe. I further found that the bees had nearly filled a frame, given them some ten days before, with drone-comb. Two days after, I found a queen hatched out, and the other cells destroyed; I therefore removed the frame of drone-comb and gave them an empty frame, hoping that, having a queen, they would fill it with worker comb. Two days later I could find no trace of the queen, and thought it would be better to give the bees some comb with eggs from another hive; I at the same time removed the empty frame, and put back the drone-comb, as, while a queen was being raised, there was no chance of anything but drone-comb being built. Next day I found the bees raising royal cells on *this drone-comb*, which had been lying two days and nights in the open air without a bee on it. Two days after, each of these cells was tenanted by a worm; which worms, or the eggs they came from, must, I cannot but think, have been placed in the cells by the bees; the comb was drone-comb, so that, if it had ever contained any eggs, they must have been drone-eggs; and, again, two days and nights in the open air would destroy the vitality of such eggs as any possible theory might suggest were in it when I took it from the hive the day the queen was hatched.

I may add that the above-mentioned comb was made in a frame provided with a very thin stick of wax-guide, about half an inch wide, and yet the comb was worked from the frame, and not from the edge of the wax, as happened in the case mentioned in the last number of the *Journal*.—B. M. B., *Mount Lucas, Philipstown, Ireland.*

[With *narrow* strips we agree; our record in last month's *Journal* was in respect of sheets 1½ inches wide. 'A Lanarkshire Bee-keeper' will ask, 'Did the worms become queens?' &c.—Ed.]

EGG-CARRYING.

'Inoculation' does not seem to produce like results in all. In yourself, for instance, it has produced only courtesy and kindliness even towards your many

tormenting correspondents, while in the case of 'A Lanarkshire Bee-keeper' it seems to have induced a disposition to sting all round.

After his letter on page 10, wherein our 'gentle Editor' is a 'novice' in whose hands narrow strips are the safest, while 'in the hands of an expert whole sheets are of the greatest utility,' it is a light matter for our friend to attack me.

As, however, in last number he impugns not only my facts but my veracity, I must ask you to allow me to reply. Briefly, the four combs of brood and eggs transferred to the nucleus box were all hatched out without any attempt at queen manufacture. I frequently examined them, suspecting that there might be a fertile worker present, but never found any eggs. I then introduced a small piece of comb with eggs, which were also in due time hatched out as workers, during the whole of which time no eggs were laid, nor could I detect by frequent and careful examination (by which I mean seeing every bee on each frame several times over) anything like a queen, perfect or 'imperfect.' I then removed a frame and substituted one full of eggs and brood, and on examining *next day* found that a patch of eggs had been removed from the centre of one side of the comb to make room for a cluster of queen-cells, and that a number of cells in the *adjacent* comb, and *opposite* to the queen-cells, contained eggs, and that the corresponding cells on the *other* side of the comb also contained eggs, the whole number being, as nearly as I could judge, equal to the quantity removed from the brood comb. These eggs were hatched simultaneously with the remaining eggs in the brood-comb, and no other eggs were laid in the box until one of the queen's had been hatched out and impregnated.

If this does not amount to a proof of egg-carrying, I fear that nothing short of catching the porters with the eggs in their pockets (they *cannot* carry them in 'their mandibles,' we are assured) will convince our Lanarkshire friend. To 'the ignorant' these facts may seem a little conclusive.

Although I began bee study when only ten years old, with a Huber leaf hive (the best I then knew of), and have been a pretty close observer of them during the greater part of my life since, and for the last few years with bar-frames, I may not be considered by our friend as 'a man who has studied and watched the habits of bees,' but one of those 'ignorant' persons who '*perhaps may believe*' their own 'plausible tales,' though 'assertions merely through conjecture,' and 'who have used straw and darkened hives only.' He certainly has *some* ground for the latter idea, since I do really possess a straw hive, and use it to hive swarms in.

Fair criticism is wholesome and desirable, but science will never be advanced by an assumption on any 'expert's' part of a monopoly of skill and knowledge, combined with the imputation of ignorance and untruthfulness, to co-students of possibly equally careful research.—W. Bassano, *Haden Cross, Aug.* 5, 1875.

WHAT IS HONEY?

Mr. Griffin's letter—pages 73 and 74—suggests the following questions:—

1. Is any physical or chemical change effected in the nectar, as contained in flowers, by the process of collection and storage as 'honey' by bees?

2. Is any similar change effected in syrup after undergoing the same process?

3. If so, is there any difference between 'honey' prepared by bees from nectar and 'honey' prepared by them from syrup?

4. Is there any difference between wax prepared by bees from nectar and wax prepared by them from syrup?

Possibly among your readers there is a sufficiently good analytical chemist to undertake the solution of the above questions, which would be of great interest to all bee-keepers.—F. L., *Clapham.*

THE EGYPTIAN BEES IN THEIR NATIVE LAND.

From Swinforth's *Heart of Africa* I condense the following 'first-rate' notice of the Egyptian bee, as observed by him on his voyage up the Nile.

'As our towing-rope was being drawn along through the grass on the banks it disturbed a colony of bees. In a moment, like a great cloud, they burst upon the men who were rowing; they all plunged into the water and sought to regain the boat. The bees followed them, and in a few seconds filled every nook and cranny of the deck. I was arranging my plants in my cabin, and called out to know the cause of the noise and confusion, but got only excited gestures, with the cry of "Bees! bees!" I tried in vain to light my pipe. In an instant thousands of bees are about me, and I am mercilessly stung all over my face and hands. Vainly I try to protect my face with my handkerchief, and the more violent my motions the greater the fury of the bees. The maddening pain is now in my cheek, now in my eye, now in my head. The dogs under my bed are frantic and burst out, overturning everything in their way. Losing well-nigh all control, I fling myself in despair into the river. I dive, but all in vain, for the stings still rain down upon my head. I creep through the reedy grass to the swampy banks, and with lacerated hands try to gain the mainland, to find shelter in the woods, but am dragged back by my servants with such force that I am nearly choked in the mud. Again on board, I drag a sheet from my chest, which affords me some protection, while I gradually crush the bees enclosed within the sheet. By great courage on the part of my people, my large dog was brought on board and covered with cloths: a smaller one was never recovered—stung to death, no doubt, by the bees. Cowering down under my sheet, I lingered out full three hours, whilst the buzzing continued uninterruptedly, and solitary stings penetrated periodically through the linen. Every one became equally passive with myself; perfect silence reigned on board, and the bees subsided. Some of the crew then crept stealthily to the bank and fired the reeds. The smoke carried away the bees, and the boat was drawn to the other bank.

'With the aid of a looking-glass and pincers I extracted the stings from my hands and face, but could not reach those under my hair. These produced ulcers, which for two days were very painful.

I felt ready that evening for an encounter with half-a-score of buffaloes or a brace of lions, rather than have anything more to do with bees! Several of our party suffered from violent fever. Of sixteen boats which followed us all were pestered by these bees, and two persons were stung to death.'

Mr. Langstroth adds as follows:—'Does any one want such bees? There are two passages in the Bible in which the anger of bees is spoken of. Moses, in Numbers, says, "Your enemies chased you as bees do." Such a comparison would hardly have been suggested by any experience with our common bees. It is this very species, *Apis fasciata*, that inhabited the Holy Land; and to his hearers, so well acquainted with its terrible ferocity and persistency of attack, he could have used no comparison more forcible. "They compassed me about like bees," says the Psalmist, and we know now the power of the comparison. The sacred writers were speaking of this very bee—and we have here another incidental confirmation of the fact, they were speaking out of a true experience.'—J. H., *Gleanings on Bee Culture.*

BEE-KEEPING IN CANADA.

It is only recently that I have become aware of the existence of the *British Bee Journal*, and through the assistance of a friend in England have had the pleasure of seeing one of its numbers. I have for the past nine years been taking the *American*, from which, and the *Hive and Honey Bee* of Langstroth, I have derived what knowledge I possess of bee-culture. I must now have your *Journal*, though I fear from not having commenced with the beginning much of its phraseology will not be quite intelligible to me.

I am using the Langstroth hive, ten frames, made of $\frac{7}{8}$-inch strips (width), the outside measurement of the frames being $17\frac{1}{2}$ by 9 inches; and latterly I have with good results been using this two-story for extracting. I am, however, more interested in what is said in the May number by Mr. C. N. Abbott about the wax-sheets, and particularly the manner of making them at p. 4. It will now be too late to make any use of them for this season, but I may, perhaps, be able to see my way clearly for next year. I have never yet experienced any difficulty in getting straight combs, though I have frequently desired some device which would give us worker instead of drone comb when a new frame is introduced, as you direct in artificial swarming at p. 19. My experience in this instance would lead me to insert a frame of drone-comb to be filled with honey whilst the queen-raising was going on, to be replaced with an empty frame when they have a young queen, when it will probably be filled with worker-comb.

It is to me matter of astonishment that you have any difficulty in wintering bees in Britain. I consider it desirable, nay necessary, to house my bees in winter. Last year I put them in Nov. 11th, and they were not put out again until April 12th, a serious drawback to bee-keeping. I have never lost any but from actual starvation, and that I always intend to prevent by ascertaining the exact condition of each by weighing in September.

My bee-keeping has been on the whole satisfactory. Since the use of the extractor my hives have given me fully 120 lbs. each. This I dispose of, chiefly to retailers, put up in bottles, and I do not realize more than 6*d.* sterling per lb.—W. P. Taylor, *Fitzroy Harbor, Ontario, July 20th*, 1875.

PERFORATED ZINC.

I would bear testimony to the practical success of the perforated zinc in preventing queen-bees breeding in supers.

O. Poole, Esq., kindly sent me a sample piece several years since, and it certainly has answered well with me.

I believe *you* do not advocate its use. May I inquire your reasons?

Is it on the ground that if one only provides a sufficiently large stock-hive, the queen-bee will never breed above? The trouble with me would be in the varying strength of stocks, according to favourable seasons, &c. In a favourable season they would breed fast; and if stock-hive were not large, they would breed in super. On the other hand, if the season were unfavourable, the large stock-hive would be a great disadvantage.

I took 30 lbs. of honey from a bar-frame super in the middle of June; but since then my hives have lost in weight, and don't seem to gain now, though the weather has been dry the last few days, and there is abundance of clover, marjoram, and other wild flowers. It would be interesting to have the comparative results from black and Ligurian bees in a season like this.—Arthur T. Webb.

[We do not advocate the use of narrow slits or perforations, because sometimes queens get through them into the supers, and breed drones, which die and rot there. Largeness of the stock-hive must be comparative, and is important; but the *essential* is that it shall be filled (?) with brood when the super is put on. Instead of quoting 'large hives,' we will in future insist on a *large breeding space well filled* as the desideratum. A large hive may be choked with honey and pollen, or may have several empty combs in it: in the latter case, who can say, after the super is on, whether honey or brood will be deposited in them? If honey, the queen's power will be restrained; if brood, the perforations or slits will be unnecessary.—Ed.]

HIVE CONSTRUCTION.—SAVING BEE-LIFE.

In the August Number 'Llyswen' draws attention to the murdering of bees in letting down the crown-board or adapting-board on Woodbury hives, and makes a proposal, of which he gives a section sketch, for improving the method of replacing crown-boards to lessen the evil he complains of. In my opinion it will only lessen it to some extent, for bees will go into those 'grooves' and 'round ridges,' and run the risk of losing some of their limbs, if not their life. His plan must also increase the expense of making hives without being effectual. If 'Llyswen' will adopt the plan I use, which our Editor advocates, and which I can from experience recommend to him, it will spare his feelings and save the lives of his bees, for he need never murder a bee. It is the simplest, cheapest, and most humane for working bar-frame hives.

Take a square of jute carpet, what is known as stair-carpeting, 18 inches wide. Any other material of carpet will do, but I prefer jute. It is cheap, light, hard, and tolerably smooth; and the bees do not fix their combs to it, nor propolise it to any extent. Lay it on easily above the frames, draw gently an inch or two from side to side two or three times. Any stray bees on the top of the frames and hive-walls will pass from under the carpet into the hive, for they lift it sufficient to get out of the way without being damaged or killed. Any little sprite not able to get away will cry out in her own peculiar voice to be relieved, and the slightest raising will give instant relief, and her doleful sound be at once changed to a hum of joy.

Above that I lay on the quilt, made of the same material, but of several thicknesses; or a yard of the carpet cut through the middle, neatly sewed and bound round, and stuffed to ½-inch thick with bracken, horsehair, dried fibre, moss, or any open, porous, warm substance. Plain sewing and binding will do, but those who do not mind expense, can make the quilt the most elegant and most handsome covering for a crown-board to a hive. It may be bound with silk, trimmed and stitched with gold lace and tassels, &c. I can assure 'Llyswen' if he calls his lady friends to his aid, they will be delighted with the task.

I have no crown-boards; I always use the quilt, except when supers are on. In the spring-time, when active breeding commences, I lay a square of American leather or oil-cloth on the top of the frames in place of the carpet.

This being of an impervious nature, keeps in the moisture which during the winter time was slowly evaporating through the quilt, but which is now necessary. It also prevents, of course, all upward currents through the hive, and keeps the brood-nest snug and warm. Then two slits cut out of the oil-cloth at each side, corresponding with two spaces between the bars; and when it is time to put on a super, the quilt is removed, and the oil-cloth serves for an adapting-board. I may mention that in the centre of the square of carpet, American leather, and quilt, is a 2-inch hole. The bits cut out are bound and sewed, and serve for a plug. When I have to feed, I take out the plug and place one of our Editor's hexagonal feeding-stages on, and then the bottle.—*J. S., Arbroath.*

REMOVING BEES TO THE HEATHER.

"Since you published my directions for removing bees to the moors in the *Journal of Horticulture* of July 21, 1863, I have had several letters showing how carefully my instructions should be carried out, to prevent the combs in swarms breaking down and drowning the bees in their own honey. And as my object is to preserve the lives of these useful interesting little creatures, as well as to encourage bee-keepers by showing them how to make a good profit out of their bees, I think I cannot do better than to give them the correspondence I have had with the Lincolnshire Bee-keeper, which clearly shows how easy it is to remove swarms even with combs only partly made and loaded with honey, if my instructions are strictly carried out.

'*Lincolnshire, July 29th*, 1863.

'Mr. Carr, Dear Sir,—Previous to seeing your instructions in the paper, how to remove bees to the heather, I had removed thirteen swarms to the moors, and the combs broke down in several of them, and the bees were all drowned in their own sweets, and were totally destroyed. The plan I pursued was to take the hives gently off the stand and tie them up in a thin piece of calico, and they were conveyed very steadily to the moors. But you appear to prefer carrying them turned upside down. My bees are in flat-topped straw hives. I should esteem it a great favour if you would drop me a line with some further instructions, as I want to take about twenty more hives to the heather.' Yours, &c.

In reply I said—

'I am sorry you have had the misfortune to lose some of your hives of bees, as it is very discouraging. The new combs, especially in late swarms, are as brittle as glass, and break down with the least shake when heated, and even fall with their own weight if they have any honey in them, as the bees when made up with the finest calico get excited, and the heat ascending to the top of the hive soon melts the combs and they give way. But I think if you will follow my directions you will meet with no further accidents, as I have taken my bees to the moors for many years, part of the way by the railway, and then six miles over a very rough country, on and suspended under a carriage, and I took them again last Saturday without any accident. Fasten your bees, especially your swarms, in a cover of very open net (strong cap-net will do) with holes in just small enough to prevent the bees escaping, and, when tied securely turn the hive gently up, but mind that the edges of the combs are at the bottom part as you turn the hive over, otherwise the combs will probably either bend or break with their own weight and that of the bees upon them. When turned bottom upwards, the combs all rest upon their own foundation, and the heat always ascends, and so escapes through the net, and the inside of the hive is kept cool. Swarms always ride the best suspended. With old hives the same amount of care is not necessary, as the bees varnish their combs with a sort of glue, and when they have had brood in the combs the cocoon left in the cells again strengthens them, so that they become nearly as tough as leather, and you can knock them about as you like, provided you give them plenty of air. It will be a gratification to me to hear that I have been the means of saving you your property, and the lives of the poor bees, and am, &c.—Wm. Carr, *Clayton Bridge Apiary, near Manchester.*'

'*Lincolnshire, August 13th*, 1863.

'Mr. Carr, Dear Sir—It is impossible for me to return you sufficient thanks for your information about taking my bees to the heather. I purchased some strong cap-net, and conveyed my bees as you directed, and I had not a single accident, and they all arrived safely at the moors. I had some of them suspended, and others put on some straw in a light cart, and the pony trotted very quickly for about five miles over a very rough road, and, as you said, the hives were kept cool, and there was not a single comb damaged in any of the swarms whatever. If you should at any time be so unfortunate as to lose your bees, I shall have great pleasure in presenting you with a new stock, and am, &c.'

Wm. Carr, *Clayton Bridge Apiary, near Manchester.*

What is Virgin Honey?—In 'The Child's Guide to Knowledge,' 'adapted for young persons,' 'largely used in schools,' &c., virgin honey is described as '*The honey made by the young bees, which is purer than any other.*' We do not know whence the Guide obtained this information, but think it might now be varied so as to get a little nearer to the truth.—Ed. *B. B. J.*

Foreign Intelligence.

GERMANY.

Grand Apicultural Show at Strasburg and Alsace,

On the 14th, 15th, 16th, & 17th September, 1875.

The Association of German and Austrian Apiculturists have chosen for the place of their twentieth annual meeting the city of Strasburg in Alsace; and will there arrange in the buildings and grounds of the Orangerie, which have been placed at their disposal by the city, an International Exhibition of Apiculture, together with a prize lottery for apicultural products. The participation in the Exhibition is open to all. Living bees, as well as all articles and products having regard to the culture of bees, will be received for exhibition. A jury, named by the Association, will award the prizes for the articles exhibited. The Association, desirous of giving every facility in their power to strangers visiting the city on this occasion, have named a special committee for the reception and lodging of guests. M. Louis Henry, president of this Committee, will willingly give any information that may be desired, through inquiries addressed him at the Mairie at Strasburg.

The organisation of the Exhibition has been intrusted to the Exhibition Committee. The same receive the applications of exhibitors, and undertake the receiving, insuring, unpacking, exhibiting, re-packing, and re-forwarding, the articles exhibited, without any expense whatever to the exhibitors. At special request the Exhibition Committee will also recommend reliable agents for the sale of articles exhibited, without, however, becoming responsible for the same.

Applications for exhibition, and all communications, should be addressed to the President of the Exhibition Committee, Dr. Raymond Schramm, Dornengasse, No. 11, Strasburg, in Alsace.

Apiculturists desiring to exhibit are earnestly requested to forward their applications as soon as possible, stating at same time the room required and the detailed value of the articles they wish to exhibit.

The programme of the twentieth meeting of German and Austrian apiculturists has been determined as follows:

Tuesday, Sept. 14th.—Evening reception of guests by the city in the hall of the Réunion des Arts; military concert.

Wednesday, Sept. 15th. Morning until 9 a.m.—Inspection of the Exhibition, 9 a.m. to 2 p.m.; conference, and election of members of the jury; 2.30 p.m., banquet. Afternoon.—Visit to the curiosities and sights of the city. Evening.—Concert of the City Orchestra in the hall of the Réunion des Arts.

Thursday, Sept. 16th. Morning until 2 p.m.—Continuation of conference; choice of place of meeting for next year's conference, the twenty-first.—4 p.m. Distribution of prizes in the Orangerie; drawing of the lottery in the Mairie.—Evening. Illumination of the Cathedral; grand ball in Alsatian national costume in the Réunion des Arts.

Friday, Sept. 17th. 8.30.—Excursion to the Vosges. —Evening. Gala performance in the theatre.

The Presidents of the twentieth meeting of German and Austrian Apiculturists:—First President, His Excellency (signed) von Moeller, President Superior of Alsace and Lorraine. Second President: (signed) Mr. Schmidt, Jean, landed proprietor at Barr, Lower Alsace. Permanent Vice-President: (signed) Mr. André Schmid, Prefect of the Seminary, Eichstaedt.

Strasburg, in Alsace, July 12th, 1875.

FRANCE.

It is intended to open a subscription among bee-keepers to assist those of their *confrères* whose apiaries may have suffered from the inundations in the south of France.

A formal invitation to take part in the German Apicultural Congress to be held at Strasburg on September 14, 15, and 16, and 17, has been received, and it is anticipated that several scientific bee-masters will avail themselves of the opportunity.

AMERICA.

Moon's 'Bee World,' Georgia, U.S.—'Friend Barber's remarks on the Mellilot clover should receive special attention from every bee-keeper. My experience confirms his statements as regards its value for honey after other resources have failed. It keeps the bees employed till frost kills the bloom.—Jewell Davis, *Charleston.*'

ITALY.

The full programme of the German Apicultural Congress, to be held at Strasburg this month (September), has been published here for the guidance of intending visitors and exhibitors.

The Italian Great Annual Bee and Honey Exhibition will be held at Milan on December next. Foreign exhibits will be admitted, but for show only.

So far, the honey yield has proved very plentiful throughout the Peninsula; besides, the season being much later, bees are reported to be still very busy making their harvest.

With a view to establish a definite meaning to the many new words continually being introduced in connexion with apiculture, an Apicultural Dictionary of Technical Words is to be published, calculated to do away with the now-existing difficulty. About 3000 is supposed to be the number of words to be dealt with by this vocabulary.

ECHOES FROM THE HIVES.

Oakbraes, Godalming.—'I begin to despair of getting any honey this year. The wet and cold weather has caused my hives to become much lighter, and bees are killing their brood.'

Newark-on-Trent, July 20.—'What wretched weather! Rains incessantly.'

Droitwich.—'The weather here is awful. No chance of any honey, a great deal of hay spoilt, and a prospect of a bad wheat harvest, the rains having beaten it down.'

Cheshire.—'The season here has been a bad one for bees, and the clover is nearly over.'

Sydenham, July 19th.—'What sad weather for the bees! They have missed all the lime season, our best in this neighbourhood.'

Douglas, Isle of Man, June.—'If all continues well I shall have about 3 cwt. of honey this season. Now, it is altogether out of the question for any one to think of obtaining that quantity in the old way; the annoyance, trouble, mess, waste of time and honey, are too dreadful to think of. I must have an Extractor to obtain the run honey quickly and without waste.'

Lewes, Sussex.—'I have found the Bligh Quieter and Fumigator most convenient, and have made frequent use of them throughout the swarming season.'

Bees Hiving three times in June.—Mr. John Selfridge, jun., Aghadowey, Co. Derry, Ireland, writes to say that his bees have swarmed three times during the month of June, viz.—on the 2nd, 14th, and 24th; and that they are all strong and doing well.—*Coleraine Chronicle.*

Falkirk, August 6.—'I took six of my stocks to the heather on Tuesday last; the day was very warm. I had a cheese-cloth on top. The distance was only about thirty miles by rail and three by cart. They were very sick when opened, and ran over the board among the grass, and unfortunately it commenced to rain, accom-

panied with thunder, and I lost many bees. I took off on last Saturday eight boxes from five hives (none of them having swarmed). Six weighed 22 lbs. each, and two 18 lbs., but none of them fit for competition. As they are very strong, I expect something creditable from them from the heather. We have had fine weather with occasional showers for the last three weeks, and some of the bees here have done well considering the locality.'

Augusta, Georgia, U.S., July 14.—'It is a dull season now with bees in this portion of the United States; but we have two honey-harvests during the year—one in spring, commencing about the 1st of April and lasting till the middle of June; the other, in fact, beginning 1st of September and ending about the middle of October. The golden rod and asters are our principal fall flowers, and from these the bees, in some seasons, gather as much as they do in the spring. Our spring-harvest has been above an average.'

Gadgirth, Tarbolton, August 5.—'I have thirty stocks (all Ligurian) in excellent order, but have not succeeded in getting one super filled, although the fields in the vicinity were never so luxuriant with white clover; but, owing to cold winds, the bees could not get any honey.'

Stroud, Gloucestershire, August 17.—'I am afraid this season and the coming winter will discourage many of our brother bee-keepers, those near the moors, perhaps, excepted. I mean to reduce my stocks by joining.'—G. F. T.

Arbroath, August 6.—'The season here for bees has been peculiar. Some have done well, others fair, and some very bad. I am well pleased with mine. I shall have from 40 to 50 lbs. of honey-comb in supers off the Cottage Bar-frame, transferred in October last. I have got three fine swarms off the hive into which I put the Ligurian queen you sent me last year, and the top swarm with the pure queen put into a Pettigrew hive for a test is far before any black swarms in this quarter.'

Horsham, June 21.—'The cottagers about here have not been successful with their bees as yet; not many swarms, and the supers, when used, have not been quickly filled, in consequence of the cold winds and heavy rains.'

Ulverston.—'I am coming up if all's well on purpose to see the Show, and would like to see your bees. I have upwards of twenty stocks, and it has been the worst season for honey I ever remember; but should we yet be favoured with fine weather, we may still have an average season, as we take our bees to the moor, which is only about three miles away. The heather is just coming into flower.'—W. J. B., *August* 9, 1875.

Badminton, Chippenham, August 7, 1875.—'The season here has been a very bad one, my bees have not gathered more than they consumed since the first week in June; and the late swarms have not enough to last them through this winter, this state of things seems to be general, for I hear bee-keepers throughout this neighbourhood complaining of the season being very bad.'

East Cowes, Isle of Wight.—'I believe it has been a very bad season for bees in this neighbourhood, as they made very little honey up to now. A bee-keeper told me a few days ago that he had only taken 7 lbs. of honey from six hives, whereas he has generally taken in previous seasons between 50 and 60 lbs. up to the same time.'—*July* 31.

Isle of Man.—'Since I received your last most kind letter I am no better off with regard to obtaining an extractor than I was three weeks ago. It is now getting time to take the honey and arrange the stocks for winter. Notwithstanding the horrible summer we have had I have had no losses with my bees, all the hives *seem* very heavy; ten of them, the largest—Pettigrew's straw flat-top round hive—a man can hardly lift. I am writing about an extractor, but one has never been seen here. My friends say, "Don't try it without the opinion of some one known and to be trusted." Everything now is looked upon as a take-in here.'—*August* 5, 1875.

Horsham, Aug. 21, 1875.—'If you desire to know the state of the bees here, I can inform you that there have been very few swarms, most of which are perishing, and very little honey. I have supers of comb which will keep for use for next year; some, fairly filled, also had brood, which I returned to be hatched out. My heaviest, *without feeding* (which is not admissible as supers intended for *my* table), is 26 lbs. Others gave me a good return in June, but none since. The bad year will not harm me, as a friend has offered me several stocks, bee-house, and plant, as "a perfect failure," if I will accept them.'—A. H. S.

Whitehall Place, Aug. 23, 1875.—'I have joined three weak skeps into a bar-frame hive, and, with the transferring board, certainly nothing could possibly be more simple than the change of combs. I yesterday opened up the hive in which I placed the pure Ligurian queen, and it is crowded with bees and young Ligurians—rare beauties. I fed them up after adding the queen, and of course that accounts for the great strength of the hive in young bees; but they have been killing the young drones, and eating them out in their larva state through my having stopped their supply of syrup.'

Bees attacking Ripening Fruit.—Mr. W. Miller, of Combe Abbey, writing to the *Gardener's Chronicle* under date of Aug. 16, says:—'Yesterday and to-day the bees have attacked our ripening peaches and apricots most savagely, so much so that we were obliged to gather all that were anything like ripe. I never observed this before. Have you heard of any similar complaint? Wasps, so far, have not been very plentiful.'

Offley, Hitchin.—'Before leaving home, last Friday, I examined my hives, and had the misfortune to find that the two most powerful swarms of this year (in regard to numbers) were dead—every bee starved. The weather in Hertfordshire has been most bad for bee-keeping, for six consecutive weeks the bees had but three working days. I had fed all my new swarms, but owing to other business I had not lifted them for a few days to see their weight, and here was the consequence—my best two starved to death. They had evidently employed the syrup in the building of comb, for in one hive there were six large combs, in the other five. It was late at night when I found out my loss, and I was to start for Scotland early next day. So I collected the dead bees, about a peck, and threw them away, and took the hives in-doors until I return. I expect that most of the comb is full of dead brood, and useless to me for giving to other hives.'

Liff, by Dundee.—'Thanks to "our *Journal*," and other sources, I have become so expert in manipulating bees, that I am now looked upon as the "doctor" of the neighbourhood. One neighbour finds a swarm in a gooseberry-bush, *with combs 12 inches long*, and lots of sealed brood. I am sent for in hot haste, and transfer both bees and combs to an old-fashioned hive. Another loses a fine virgin swarm in a hollow tree. I am sent for, and advised to *burn out* the lot to prevent swarms in future years going to the same place. Instead of this, with a long-handled tin ladle, and a tin pitcher, I take out and safely house the whole swarm in twenty minutes. A third discovers the queen from a second swarm dead in front of the hive. No brood being raised, nor eggs in the royal cells just begun, I cut out a queen-cell from a neighbour's hive, and have the pleasure some days after of actually seeing the princess emerge from her prison. I have got five supers, of 8 to 10 lbs. each, from clover, and have just removed all my bees to the heather, hoping to get at least other five. The season has been peculiar, though not nearly so bad with us with you. Many hives swarmed in May, but bad weather coming on there were few seconds. My own did not swarm till June, and I got second and third swarms during a warm "blink" as late as thirteen days after. I have been so much more successful than my neighbours that an impression is

gaining ground that after all the *improved* system is the best. I am sorry to say, however, that there are few in the neighbourhood who practise it, and these few are in despair. One has foul brood, another the bee-moth, and a third is in a bad locality. On the whole, however, things are moving on. Could some of your Association officials not give a hint to the Committee of the International Horticultural Show, which I understand is to be held in *Dundee* next year, to introduce the honey gatherers to notice as you are doing in England? A few of us would be delighted to assist in getting something made of it.'

Whitehall Place, August 10th, 1875.—'The gauge I received quite safely, and I think it is an extremely useful instrument, and the price within the reach of all; and only let the bar-framists see it, and I am satisfied everyone will purchase so useful a tool. I shall make a transferring-board this evening as per sketch of the Aug. Journal, as it will save much trouble. With regard to the bees not carrying up their cells to the top of the bar when wax-sheeting is used, I took off some sectional supers the other day in which the impressed wax-sheets had been used, and in every case the cells were carried up nearly in a line with the front face of the comb. I am making some experiments on the manufacture of impressed wax-plates by the electrotype; if it answers will communicate the *modus operandi*. I will, with your permission, give you another look up one of these afternoons, as my last visit was a great delight. I should like to have particulars of the Association as to the sub-meetings, &c., as I should feel great pleasure in attending them.'—W. F.

[Note. As at present constituted, there are no sub-meetings of the Association. Everything is left to the Committee and Secretary.]

Somerset.—'Many of the bee-keepers of this county, who have usually had plenty of honey to sell each autumn, will not have enough for their own use this year. Indeed, some of my friends have decided not to attempt to take any, and others will find feeding necessary if their stocks are to winter well. In very favourable quarters there have been decent yields, and really good honey can be had at 1*s.* per lb. But adulteration is largely resorted to by certain dishonest bee-keepers in this district, coarse sugar being one principal ingredient. I tasted some wretched stuff whilst visiting a friend lately, but then it had been bought at 8*d.* per lb., so it belonged to the "cheap and nasty" catalogue. The highest price here last season for pure honey was 1*s.* 4*d.* per lb. I fancy many bee-keepers will have occasion to remember the lines which *Punch* published a few weeks ago:—

> I'll remember, I'll remember,
> How this summer fleeted by,
> With the warmth of a December
> In the middle of July!

In my last I promised to refer to some of the local superstitions about bees. In many of the villages of Somerset there are those who believe that when a death occurs in a bee-keeper's family, the bees will die, or fly away, if they are not told of the event, and "put in mourning" by tying a piece of something black on the skep. Unreasonable swarming is considered to be a prelude of death in the family circle, and decently-educated people have told me many stories intended to support this theory. Probably these foolish ideas are not confined to Somerset, but they may interest some of your readers, and I may trouble you with more on another occasion.'—Tauntonian.

Dorset.—'The bee-keepers in this county are, like their brethren throughout England, suffering great loss this season in consequence of the unusual fall of rain. For July a register at Dorchester gave 4·74 inches, as against 1·15 during the same month in 1874. Feeding has been absolutely necessary in many cases, and where this has been done grudgingly the result is far from satisfactory. It has been the custom for some of the local Horticultural and Cottage Garden Societies to offer prizes for honey; but I regret to find that these have been discontinued this year at Sherborne, where the leading county show is held, in consequence, no doubt, of the want of competition for some years past. In the report of the annual meeting of the Piddletown Cottage Garden and Horticultural Show, held on August 6th, the *Dorset Express* says, "A novelty, greatly admired, was a display of several combs of super-honey (taken from the hive on the depriving system) kindly sent for the occasion by Mr. John Antell." I wish a few more bee-keepers would follow the example thus set, as there is nothing so effectual as a good example in overcoming ignorance and prejudice. If the labouring classes were only shown that the golden eggs can be taken without killing the goose, and with a very small amount of risk, they would soon begin to try the experiment. At the Down House Flower Show the following prizes were awarded: Dish or glass of honey in comb (not less than one pound, three entries): 5*s.* John Day, Preston: 2*s.* 6*d.* James Barnett. Cake of bees-wax (not less than one pound), 3*s.* 6*d.*, T. Crawford; 2*s.* 6*d.*, Frederick James.'—Novice.

Queries and Replies.

SWARMING OR NON-SWARMING?

Query No. 132.—By the above heading I mean is it better, both in regard to large supers and strong stocks for the ensuing year, to encourage swarming, and thereby look to swarms for supers of honey, or by adding supers as needed to *stock hives* prevent swarming, and obtain the honey harvest therefrom? My reason for thus explaining my question is, that having this season done all I could by adding supers and ventilating (giving air occasionally, although the bees as continually filled up the ventilating holes) to prevent swarming, I find upon making inquiry of one whom I am informed is a great authority, that I have been following a plan that is certain to lessen my prospect of a good stock hive (speaking of one only) for next year. But this much I know, that had the weather not changed some two months since, and thereby deterred the bees from collecting for supers, I should not have been afraid to show the results of my plan (non-swarming) at the Crystal Palace Show. And yet I am told to reverse my plan by encouraging swarming, depriving the stock hive of both bees and honey three weeks after, thereby keeping no stock hive of last year to go through a second winter; and, moreover, that hives so treated generally make good stocks. I can quite understand the driving of the bees out of the stock hives twenty-one days after the issue of the first swarm, and not before, but why it should be done if swarming is to be encouraged I know not.

Now the one hive I refer to above is a straw Woodbury, and was very heavy and strong when I purchased it early in the season. In due course, when it showed strong symptoms of swarming, I put on a bell-glass super capable of holding about ten pounds. This they went up into almost immediately, and continued their labours day by day till, thinking it quite full enough to allow of enlargement, I put a 14-inch square, by 4½ inches deep, wooden super, with bars, under it, with pieces of comb attached here and there. They continued their work, and added to the second super, working in both till the weather changed, and since then they have done very little. To-day I took off the glass super. It was nearly full, and most of the cells were sealed over. There was neither brood-cells nor bee-bread in it, nor in the square one which I took off to see what its contents

were, and finding four of the bars half filled with comb and honey, have replaced it again for the present.

2. As this hive has not thrown a swarm, and must be quite full of bees, and I have no doubt plenty of honey besides, would it be advisable to deprive it of some of its contents (honey)? If so, about what quantity should be left in the bars? Should I cut away all dark or bad comb? Should they be fed at all if they have plenty of honey?

3. Can you tell me why a swarming hive is better for keeping than a non-swarming one? It is, of course, evident that the non-swarming plan cannot be continued year after year; hence a few words as to the proper method to be adopted will, I feel sure, be acceptable to the readers of 'our *Journal*,' that they may, with myself, know what must be done for next season.

4. Can you likewise tell me why a hive that has say about 20 lbs. of honey in the spring (it may be partly food given to the bees) is not likely to yield a large swarm?

5. Again, why do early swarms become too heavy, for stocks of second swarms are not taken from them?

6. Why is it advisable to drive an early swarm into another hive three weeks after they were hived for the purpose of taking what honey there is in the hive?

7. Why if I use supers in non-swarming is the breeding space in the stock hive much contracted before the first super is filled, as I should have thought that the super would of a certainty be filled first?

8. Must stock hives always be deprived of a certain portion of the honey therein to insure early breeding and strong swarms?

9. Can you tell me why both my neighbour and myself have lost our stocks from which we each drove a swarm early in the season? The bees did not suddenly die, but gradually dwindled away, and always seemed inactive after the driving.

I could have framed many more questions in connexion with the above, but I fear that the length of this communication will encroach on your time and space.—JOHN H. HOWARD, 9 *Bath Road, Exeter.*

REPLY TO No. 132.— 1. The 'great authority' to whom you applied was evidently unaware that your bees were in a Woodbury moveable comb hive, or he is practically unacquainted with the moveable comb system as now developed. Supposing a swarm to have left your Woodbury hive in the natural way, queen-cells would have been left in such a stage of advancement, that about nine days afterwards one or more young princesses would be hatched into life, and whether after swarms issued or not, before the end of the twenty-one days mentioned there would (normally) be a fertile young queen at the head of the colony, which would consist of (only) young worker bees, with the usual complement of drones, the hive already filled with comb, and (probably) several thousand eggs deposited; yet at this particular moment it is advised that the combs should be cut out of the hive for the sake of the honey they contain, and the bees compelled to make a fresh start and build anew, although by such a system it is patent that the combs destroyed could not be more than one year old. Such advice is simply absurd, insane, and suicidal. If the combs under such conditions contain any honey worth removing, or an excess which would interfere with the laying powers of the young queen, it may readily be removed by the aid of an extractor without appreciably injuring them; and the young queen could then indulge her pleasurable occupation without let or hindrance, while the bees, having no combs to furnish to the hive, and finding those already there filled with eggs and brood, would, if the season permitted, be compelled to store their surplus honey in a super, or in empty combs supplied by their owner for use with the extractor. *It can never be too often repeated that the production of comb is most exhaustive to the energies of the bees, and that they consume twenty times its weight of honey in its manufacture, besides losing much precious time, usually in the height of the honey season.*

While this is going on, the swarm under the old queen has had (without the possibility of natural increase in its numbers) to make new combs in its new domicile, and it must therefore be admitted that the bees could equally well have furnished as much comb in a super, had one been provided, and swarming prevented; and when it is remembered that in addition to building such new combs they will have furnished food of their own gathering to the brood with which the combs are filled, and that such food before being administered must have been partially digested by them, we think it not unfair to conclude that they could as easily have filled the super combs with honey had there been no additional brood to provide for.

Therefore, supposing the swarm to have remained in the stock hive, and the outer circumstances to be similar, it may reasonably be concluded that during the said term of twenty-one days the supers on it would have gained an additional weight equal, at least, to the total net weight of the combs and brood produced by the swarm; besides which, as there would have been no break in the rate of increase of population, the stock hive would at the end of the period contain hatching bees instead of newly-deposited eggs, so that increased after profit might reasonably be anticipated.

On these grounds we hold that the course you adopted was the right one for obtaining honey, as the sequel in this worst of seasons proves. You have a super of honey, though not a large one, some new combs of considerable value for future use, and your stock hive in good condition; whereas had the swarming principle been relied on, you would have got no honey, and both swarm and stock would have required feeding.

The grievous loss occasioned by the destruction of the combs, brood, and pollen under the skep system of swarming and depriving advocated by your 'authority,' cannot be tolerated by any enlightened mind, but with the abominable sulphur system, on which it is undoubtedly a great improvement, must give way to the moveable comb principle, which, aided by the extractor (yet in its infancy), enables the advanced apiarian to more than double his profits, while rendering every necessary operation more easy and certain of performance, and to minimise his losses by turning everything to the greatest advantage.

2. When the supers are all removed, the combs should be taken out of the hive, the bees brushed off them, all the honey taken from them by the extractor, and 20 lbs. of syrup returned as food for the winter. If the hive contains a large proportion of drone comb, a part of it may be cut away, provided the gaps so made be filled up with healthy worker

comb, but otherwise do not remove any. As before said, the waste of comb is inexcusable. In frames where drone-cells preponderate, the combs should be preserved for store combs for using with an extractor, or for use as side combs in lieu of division-boards for contracting space, in which case they will serve to administer food in, within the hive. The dark colour of comb does not in any way interfere with its usefulness.

3. A swarming hive is *not* better for wintering than a non-swarmer, in fact it is not so good for that purpose, as notwithstanding the popular notion to the contrary, queenless stocks do carry pollen, and often so fill the breeding cells with it as to seriously interfere with the deposition of eggs when the young queen becomes fertile; and, besides this, pollen in the cells prevents the bees nestling in them so that the combs are less fit for winter occupation. In large apiaries devoted to honey-getting, although every care is taken to prevent swarming there is usually a sufficiency of swarms which *will not* be prevented, and which keep up the stock. In others, where increase is desired, the artificial swarming is the better system to adopt, as by it queen-cells can be reared in one stock sufficiently early to prevent the loss of time which would be necessary to raise them in others, so that the natural period of queenlessness may be shortened. This subject, however, will be more in season next spring.

4. 20 lbs. of honey or syrup, with a corresponding amount of pollen, will occupy more than half of the 40,000 cells which a hive of the Woodbury capacity contains, consequently the queen's power of ovipositing will be very much crippled, and the proper increase of bees prevented. Such stocks in a good spring cannot increase in numbers sufficiently to either swarm, or take full possession of a super, although in an indifferent early season, when they are compelled to consume their stores largely, they may do fairly well. In all such cases we should extract the honey, and stimulate the bees by gentle feeding until the whole of the combs became occupied with brood, and then put on the supers or swarm them as desired.

5. Early swarms never become too heavy in a well-conducted apiary. If the quantity of honey stored interferes with the queen's prerogative, and cramps her power, the combs should be relieved of their sweets by the extractor, and such as contain worker-cells should then be placed amongst the combs of brood, that the queen may fill the newly-emptied cells with worker-eggs.

6. It is *not* advisable to do anything so insanely stupid as your next query suggests. It is utterly wrong. If there is honey worth the trouble of taking from so young a swarm, *extract it*, and leave the brood to hatch out and strengthen the new colony.

7. If your bees do as your query implies, it is because they have been improperly managed beforehand. The stock hive ought to be full of brood (with little stores) before the supers are put on, and the bees fed gently until the outside supply of honey will enable them to take possession and commence building in them. In autumn, as the days shorten, the incoming of honey gradually lessens, and the breeding considerably slackens, and then the bees stow their surplus in the vacated brood-cells. During the past month of July we have heard of two instances where within three days after the removal of their supers the bees actually died of starvation.

8. Stock hives should be kept free of superfluous honey as long as rapid increase of population is desirable. In autumn the accumulation, if there be any, may be optionally dealt with, as hereinbefore suggested.

9. The stocks mentioned evidently remained queenless after the swarms were taken from them, and gradually dwindled away, because after the lapse of twenty-one days there were no young bees hatching to take the places of those which died naturally.—Ed.

Query No. 133.—1. In the early part of June I 'turned out' some stock of bees on the 23rd day after first swarms issued, intending to utilize their combs, which were all new, of 1874, but I found in every one several *scattered cells*, still covered, and in each a decayed grub, but of recent date; *would it have been safe* to use the combs under the circumstances? I feared to do so, apprehending it might lead to foul brood. I seek the information now in prospect of shortly 'turning out' some others.

2. How long will brood in comb remain uninjured by being kept from the bees after they have been turned out?

3. Do I understand you aright in supposing that you would replace, after slinging, all comb *with pollen*, the comb being otherwise good? Would there be no danger of too much space being occupied by it?

4. When combs in frames have been deprived of their honey, with a view to provide brood-space for the queen, does it matter in what part of the box they are replaced—centre or outside?

5. I wish to 'turn out' and unite before the heather—which is half a mile on one side, and two miles on the other—comes into full bloom; first, because of the difficulty of extracting the heather honey without breaking up the combs; and, secondly, to enable the bees to make stock for the winter. *When* may I begin, without too much risk, to brood?

6. What quantity of sugar-syrup per diem would you deem slow feeding, and yet sufficient for a late stock, if scantily supplied, and the season advanced? Describe *how* the quantity may be given on your feeding-stage.

Reply to Query No. 133.—1. The grubs left in the cells after the lapse of twenty-three days would be drones nearly ready to hatch, and their bodies, although decayed, would not cause the disease called foul-brood. Combs containing such grubs would be perfectly safe for future use; but it would save the bees the trouble if the cells were cut away before being given to them.

2. The time during which brood may safely be exposed depends on its age, and the state of the atmosphere. A comb without bees, but containing numerous empty queen-cells and some sealed worker-cells, was taken to the late Grantham Show for exhibition; the comb was removed from its hive on Saturday, July 3rd, yet young bees continued to hatch until Wednesday, the 7th; but they died almost as soon as they left the close warmth of their comfortable envelopes. The weather in this case was very warm. Young larvæ perish from slight exposure to cold, and the bees quickly remove them from the cells; in ordinary manipulation this does

not often occur, simply because the bees adhere to the combs containing brood, and so help to keep up the heat necessary to life. Sealed pupæ will stand considerable exposure, because, being usually in solid masses, they retain the heat for a long period. It is in all cases, however, unwise to leave brood exposed for a minute longer than necessary; let it rest in the crown of an inverted hive, and stick some sticks upright between it to keep it in position, then put the bees to the combs as soon as possible—this, of course, is supposing it has to be carried a distance.

3. Certainly we would give back every bit of comb containing pollen, and all empty and brood combs fit for breeding worker-bees, but not much drone comb. Having plenty of empty cells for breeding, the bees will consume a vast deal of the pollen during the winter in feeding their young. Pollen-combs should not be placed in the *centre* of either the frames or the hive, as the bees will not be able to cluster in them, the cells being already full.

4. Put the frames of empty comb in the centre of the hive, provided the combs, already containing brood, be not thus too widely separated. Do not allow a drone-comb to occupy a central position; many a stock has been ruined by such a misplaced comb.

5. Begin by all means as soon as the heather and the weather are favourable. Set the extractor before the fire, so that the air inside it shall be warmed; there will then be no danger from 'the circulation of *cold* air,' which is so objectionable in most extractors.

6. Twenty to thirty ounces per day, when bees cannot gather from outer sources, will be sufficient; but when they get an outside supply, eight to ten ounces per night will do wonders for them. If you will refer to the advertisement in the July No. of *Journal* you will find the figure 3 exhibited through a hole in the vulcanite; this indicates that there are three holes exposed over the feeding-hole in the board on which it is fixed, and which should be placed over the feeding-aperture in the quilt or crown-board of the hive. The wire-eye denotes the part of the wooden plate in which the feeding-hole is bored, and the bottle should be inverted thereon.—Ed.

Query No. 134.—Could a series of hives be kept in a large empty attic, using the present single window for a general entrance? The walls could not be pierced to afford each hive its separate entrance.

Which is the best hive for a beginner—not too expensive, and allowing of a certain degree of observation?

Are Ligurians so much better as to make it worth while to send to the south of England for a swarm, there being plenty of ordinary bees to be got about here?—*East Riding, Yorkshire.*

Reply to Query, No. 134.—Without doubt bees could be kept in an attic; but it would not do to crowd the room with them.

The best hive for a beginner is the cheapest and simplest bar-frame hive that can be procured. We say this because, in the event of failure, there will be no expensive hives on hand to deplore.

Ligurian bees are worth sending to Italy for. The Americans import them very largely. It would be cheaper to obtain a queen than a swarm, and queen-introduction is now quite easy.—Ed.

Query No. 135.—I should be much obliged by your advising me in your next number the best course to pursue with three straw hives which have been standing three and four years and have not swarmed during that period. They all appear to be very strong, and contain drones.—H. M. D. B.

Reply to Query, No. 135.—The hives are probably honey or pollen bound—*i.e.*, have so much honey or pollen stored in the cells, that the breeding by the queen is rendered impossible except in a very small degree. Stocks that neither swarm nor yield surplus honey cannot be worth keeping, and therefore we would recommend that they be transferred to two bar-frame hives, and the honey extracted so as to give breeding space and enable the queen to proceed with her pleasant task of egg-laying.

NOTICES TO CORRESPONDENTS & INQUIRERS.

East Cowes.—Fungus simply requires drying; it then becomes like tinder, and when ignited will smoulder, emitting a disagreeable odour, which stupefies the bees. The 'preparation' is all moonshine.

J. G., *New Barnet.*—Your failure in uniting arose from the bees of both hives not having been similarly treated. An undisturbed stock will not welcome a host of poor relations rudely *thrust* upon them; but if their owner takes from the proud family all their belongings—reducing them to beggary also—they will readily fraternise when mixed with their visitors, and will, after the lapse of a few minutes, if thrown on to a sheet in front of the hive, show them the way into their future home. Having Nos. 1, 2, 3, 4, 5, and 6 stocks in one line, you wish to deprive 2, 3, and 4, and to add the bees from them to Nos. 1, 5, and 6, the last-named being a weak stock. The course in this case is simple. No. 6 should have its bees taken out and added to No. 5, and it should then be placed between the stocks of Nos. 3 and 4, so that the bees driven from those hives, after being mixed together, may be compelled to accept it. No. 1 should be placed on the stand of No. 2, and the bees of No. 2 given to it. You should never attempt to unite two lots of bees without thoroughly rousing those which are to receive the visitors, and causing them to fill their sacs with honey or syrup; but it is far better to drive *all the bees* to be united, sprinkle them with their scented syrup, and mix them well together in one skep; then, after astonishing them by giving them a 'sifting' round the skep, they may be allowed to enter the home intended for them. For all purposes of uniting, sprinkling for quieting, &c., *thin syrup* only should be used, or otherwise the bees may stick together, and become a ball of bee-pudding. A pound of loaf-sugar boiled in a pint of water, adding afterwards two or three drops of essence of nutmeg, cloves, or peppermint, will be found excellent.

Notice.—A wrapper, with label attached, was brought to our office on the 23rd ult., but its contents were missing. The post-mark was illegible, and the postage insufficiently paid. The sender will please exonerate us from blame for not acknowledging receipt of his enclosure.—Ed.

Foul Brood.—J. G. Cockforten.—The best 'cure' for foul brood is to *stamp* it out. Remove the queen, as a first preliminary, to prevent the production of brood, and two days after introduce a sealed queen-cell, so that the bees may have a useful work to do in hatching and caring for her until fertilised, &c.

P. S. Swanley.—Unless one of the hives to be 'driven' contains a choice queen, you need not trouble to find either of them, as when united the bees will settle the question of which shall rule for themselves.

*** To keep pace with those Correspondents who so kindly favour us with their communications, we have again been compelled to give eight supplementary pages, but even with this addition we have been obliged to postpone the insertion of several articles in type.

BRITISH BEEKEEPERS' ASSOCIATION.

SCHEDULE OF PRIZES.

Class	HIVES.	Prizes.
1	For the best hive for observation purposes, all combs to be visible on both sides	20/0 & silver medal
2	For the best moveable comb hive (to include covering) for depriving purposes	20/0 & silver medal
3	For the best hive for use on the storifying principle	20/0 & silver medal
4	For the best hive for use on the collateral principle	20/0 & silver medal
5.	For the most economical (best and cheapest) complete hive on the moveable comb principle for cottagers' use	20/0 & silver medal
6	For the best and cheapest skep for depriving purposes	20/0 & certificate

Each exhibitor must be prepared to guarantee that he will supply any number of similar hives at the prices affixed to his exhibits. The prizes will only be rewarded on this understanding.

	BEES.	
7	For the best species or variety of honey bees (capable of cultivation in England) other than the Ligurian or black bee	40/0

The bees to be exhibited living in observatory hives.

	HONEY.				
8	Special Prizes offered by the Hon. and Rev. H. Bligh and E. Melladew, Esq., for the largest and best harvest of honey in the comb, from one stock of bees, under any system or combination of systems. The honey to be exhibited with or upon the hive that produced it (or its facsimile). To be attached thereto, a legibly written explanation of the method adopted, the locality, pasturage, dates of swarming and supering. To this may be added any particulars of his apiary which the exhibitor may be disposed to give, such as number of hives, average yield, &c.	£5, £2 10s., £1 10s., £1.			
9	For the best exhibition of super honey from one apiary	60/0	20/0	10/0	
10	For the best straw super of honey— 40/0 30/0 20/0 15/0	12/6	7/6	5/0	
11	For the best wood, or wood in combination with glass or straw, super of honey ... 40/0 30/0 20/0 15/0	12/6	7/6	5/0	
12	For the best glass super of honey— 40/0 30/0 20/0 15/0	12/6	7/6	5/0	
13	For the most ornamental device in honey-comb as constructed by the bees under the guidance of the bee-master		40/0	20/0	
14	For the best exhibition of run or extracted honey, in glasses of 5 lbs. to 10 lbs. each	20/0	12/6	7/6	

Class.		Prizes.			
15	For the best exhibition of honey in supers, or sections of supers, each separably and singly, not more than 3 lbs. in weight	30/0	20/0	10/0	
	COTTAGERS' CLASSES—(No Entrance fee.)				
16	For the largest and best exhibition of super honey in combs, the property of one exhibitor, and gathered by his own bees ... 40/0 30/0 20/0 10/0	7/6	5/0		
17	For the best super of honey— 30/0 20/0 15/0	7/6	5/0		
18	For the best exhibition of run honey in glass jars, containing 5 lbs. to 10 lbs. each ... 30/0 20/0 15/0 10/0	7/6	5/0		

All the honey and comb exhibited in the above classes must be *bonâ fide* the produce of 1875, and gathered by the bees in the natural way in the United Kingdom.

	COMESTIBLES.	
19	For the best liqueur or wine made from honey, with recipe attached	40/0
20	For the best sweetments made from honey, with recipe attached	20/0
21	For the best cakes made from honey, with recipe attached	20/0

	MISCELLANEOUS.	
22	For the best and largest collection of hives, bee-furniture, bee-gear, and apiculturists' necessaries, no two articles to be alike	1st & 2nd certificate
23	For the best drone-trap	20/0 & bronze medal
24	For the best bee-feeder, the invention or adaptation of exhibitor	20/0 & bronze medal
25	For the best method of quieting bees during manipulation	20/0 & bronze medal
26	For the best and cheapest supers for general use in an apiary	20/0 & bronze medal
27	For the cheapest, neatest, and best supers for producing honey-comb in a saleable form	20/0 & bronze medal
28	For the best honey-extractor, portability and costs to be taken into consideration	40/0 & bronze medal
29	For the finest sample of pure bees' wax, the produce of 1875, in cakes of not less than 1 lb. in weight ...	10/0 7/6 2/6
30	For any new invention calculated in the opinion of the judges to advance the culture of bees—	Silver or bronze medal at the discretion of the judges
31	For the best and most interesting collection of natural objects connected with apiculture, illustrating the natural history and economy of the honey bee—	Bronze medal
32	For the best MS. lecture on bee-keeping, with or without diagrams, the prize MS. to become the property of the Association	£5.
33	For the best micro-photographic slides, suitable for use in magic lantern, illustrating bees	20/0 & bronze medal

Honey Fair.—In addition to the prize exhibition, a distinct counter will be appropriated for the exhibition and sale of honey in comb and in glasses, and in this department sales will be permitted and goods delivered at all times during the Show. The Association will provide salesmen. All money must be paid through the hands of the clerk in attendance, and will be afterwards accounted for, less 1*d.* in each shilling for commission. Every exhibit at the sale counter must have distinctly marked on it the weight and the price, which must include the package which contains it. The Association will not undertake to break bulk. Every exhibitor in this department will be required to enter his name, &c., with the fee of 1s., by Sept. 1, and must also state the amount of counter space that will be required for his exhibits.

Every hive or miscellaneous apparatus substantially the same article as exhibited last year must have in its construction a distinct improvement in the opinion of the Judges worthy of another prize; without such, and in case it should again be adjudged as the best of its class, the medal or certificate only shall be given, but if the latter, the fact of the two adjudications shall be stated on it.

BRITISH BEE-KEEPERS' ASSOCIATION.

COMMITTEE MEETING, July 23, 1875. Present—Mr. HOOKER and SECRETARY. No quorum.

COMMITTEE MEETING, July 30, 1875. Present—Mr. HOOKER and SECRETARY. No quorum.

COMMITTEE MEETING, Aug. 13, 1875. Present—Messrs. HOOKER, COWAN, and SEC. Mr. COWAN in the Chair.

INSTRUCTIONS were given to the Secretary for the Design for the Association's Prize Medal; and the details of arrangements for the Show were discussed. It was resolved—'That the competitive Manuscript Lectures (Class 32) be required to be sent, under cover, to the Secretary, by September 11, in a sealed envelope, with motto.' Also, it was resolved—'That the Annual General Meeting be holden on September 22 prox. at 6 p.m.; place of Meeting to be afterwards determined.'

Members and Exhibitors desiring Free Entry to the Crystal Palace on the Exhibition days, must apply to the Hon. Sec. for Tickets not later than Saturday, September 18, enclosing stamped and directed envelope.

PRIZE FUND, 1875.

PAID.

	£	s.	d.
Ainsworth, R. H., Esq. ...	2	2	0
Atlee, C., Esq.	1	1	0
Bagshaw, T., Esq.	1	0	0
Bainbridge, G., Esq.	0	10	6
Barlow, P. T., Esq.	0	5	0
Bassano, W., Esq.	1	1	0
Bayly, R., Esq.	1	1	0
Bickham, S. H., Jun.... ...	1	0	0
Bligh, Hon. & Rev. H. *Special*	5	0	0
Carr, W., Esq.	0	10	6
Carr, W. B., Esq.	0	10	6
Chambers, E., Esq.	0	5	0
Cheshire, F., Esq.	2	2	0
Clark, W. H., Esq.	0	10	0
Coleman, J. N., Esq.	0	5	0
Corbet, Rev. A.	1	0	0
Cowan, T. W., Esq.	5	0	0
Cracklow, Gen.	0	5	0
Cressy, Miss A.	0	5	0
Crompton, Rev. J.	0	2	6
Danby, G., Esq.	0	2	6
Daw, E., Esq.	0	10	0
Desborough, J. G., Esq. ...	0	5	0
Dixon, A., Esq.	0	5	0

	£	s.	d.
Drabble, G., Esq.	0	10	0
Drake, J., Esq. (additional to Class 5)	0	5	0
Fletcher, C. E., Esq.	0	5	0
Fox, George, Esq.	0	5	0
Frere, G. E., Esq.	1	0	0
Frere, Rev. W. G.	0	5	0
Frith, Geo., Esq.	0	1	6
Glennie, Rev. J. D.	0	5	0
Glennie, W. O. B., Esq. ...	0	5	0
Hale, J., Esq.	0	10	6
Harrison, T. N., Esq.... ...	1	1	0
Hart, J., Esq.	0	1	0
Hodgson, C. H., Esq.... ...	1	1	0
Jackson, F. R., Esq.	1	1	0
Legge, Hon. and Rev. A. ...	1	1	0
Lubbock, Sir Jno.	2	2	0
Masters, Mrs.	0	5	0
Melladew, E., Esq. *Special*	5	0	0
Milles, Rev. Thos.	0	10	0
Morris, James, Esq.	0	10	0
Newland, J. F., Esq.	1	1	0
Pagden, Mrs.	0	10	0
Page, Henry, Esq.	0	5	0

	£	s.	d.
Partridge, T. E.	0	15	0
Poole, O., Esq.	1	0	0
Raynor, Rev. G.	1	1	0
Scott, Rev. F. T....	0	10	6
Smalley, Rev. C.	0	5	0
Smith, C. W., Esq.	0	10	6
Stewart, J., Esq....	0	5	0
Stracey, Rev. W. J.	0	10	0
Sturge, J. Y., Esq.	0	10	0
Sword, W., Esq.	0	5	0
Thornton, H. Welch., Esq....	1	0	0
Turner, Rev. W. V.	0	2	6
Wade, C., Esq.	0	10	0
Willett, Rev. F.	1	1	0

PROMISED.

	£	s.	d.
Crystal Palace Company ...	25	0	0
Filleul, Rev. P. V. M.... ...	0	10	6
Hooker, J. M., Esq.	1	1	0
Pennell, Rev. D. W.	0	5	0
Power, Henry, Esq.	0	10	0
Smith, C. J., Esq.	0	2	6
Wilson, F. W., Esq.	0	10	0
Total	£78	3	0

Eaton Rise, Ealing.

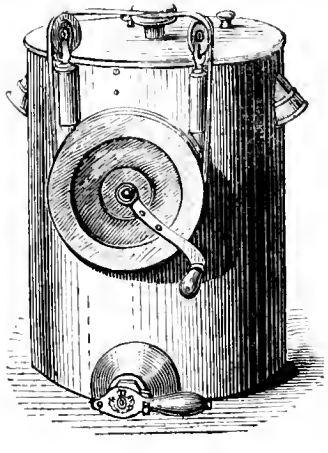
JOHN HUNTER, *Hon. Sec.*

FOR SALE.—New 'Cheshire Crystal Palace Prize Hive' (by Lee), stocked with Swarm and Cast of Fine Ligurians. Hive nearly full of Combs. Eleven Frames. Price, complete, £2 2s. J. F. NEWLAND, Wandsworth.

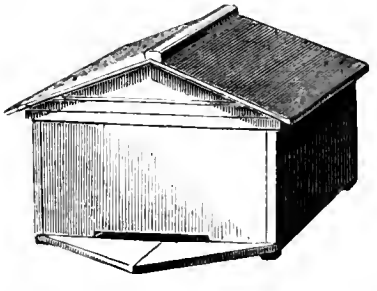
PHACELIA SEED.—Strongly recommended as Bee-pasture. See *British Bee Journal*, Vol. I. p. 199. Packets 1s. and 2s. 6d. each, free by post from W. R. UNDERWOOD, East Thurrock Rectory, Grays Essex.

HONEY EXTRACTOR.

WALTON'S IMPROVED COTTAGE HONEY EXTRACTOR. Price 35s. JOHN WALTON, Honey Cott, Weston, Leamington.



CHEAP HIVES FOR TRANSFERRING.—We are now offering the Crystal Palace Cottager's Hive at 6s. 6d. for this purpose. The supply is somewhat limited, as the Palace Show being near, this pioneer of cheapness may be superseded by something more effective. Please send P. O. O. with Order to the Editor.



IMPROVED WAX-SHEETS FOR GUIDES. No more crooked combs in supers. Every one may now make his own.

Pairs of Plates, guaranteed to fit accurately, any reasonable size, 2½d. per square inch. Apply to THE EDITOR.

OUR WANT AND SALE COLUMN.

WANTS may be advertised at 2*d.* per line of eight words, for one insertion, renewable in succeeding months, for three months, without alteration, for half price. Replies must contain stamped directed envelope, or they will not be forwarded.

All monies must be deposited with the Editor, who will communicate with the vendor, when, if a sale be effected, one penny in the shilling will be charged on all amounts not exceeding one pound, and one halfpenny additional will be charged on every shilling beyond that amount, and the balance forwarded to the vendor.

Should no sale take place, the money deposited will be returned to the depositor, less a uniform charge of fourpence to cover postage.

The carriage of all articles sent, except such charges as are incurred in first placing them on a railway, must be paid for by the depositor, and if not equal to the description given, the advertiser must pay the cost of their return.

The postage of small articles, such as books, must be prepaid by the sender. The name of the town or country in which advertisers reside, and the name of their railway, should be mentioned as a guide to probable cost of carriage.

No advertisement must contain more than sixteen words. P. O. Orders to be made payable to C. N. ABBOTT, office of *British Bee Journal*, Hanwell, W., London.

No.		s.	d.
145	Taylor's 'Manual of Bee-keeping'	2	6
147	One stock of hybrids, Ligurian mother, double-eased hive, with stand, roof, and cover. Leamington	55	0
150	Wanted.—Clean new straight worker comb—any quantity. J. F. Newland, Wandsworth Common.		
161	'The Female Monarchy.' By Rev. John Thorley, 1744, 206 pages	3	6
162	Huish on Bees, 1844	2	6
163	Murphey's Honey Extractor direct from the maker	70	0
165	Second-hand Cottage Woodbury hive (Symington's)	15	0
168	Forty queen-boxes, twopence each, or the lot ...	5	0
169	Octagon super, wood and glass, to hold 25 lbs.	5	0
170	Large 13-frame hive, with frames, Quinby size, double-cased front and back, with glass front and 2 division boards	15	0
175	Two Octagonal supers, to hold 25 lbs. each, wood and glass	10	0
176	Neighbour's improved Cottage hive, second-hand, minus the 3 bell-glasses	15	0
180	Three Octagon boxes, each with glass window and shutter, to use on the storifying system	10	0
181	Large Octagon box with 3 windows and shutters, has been used as a nadir	5	0
185	Indiarubber Gloves, cost 6*s.* 6*d.* last year ...	5	0
187	For Sale,—One 18-in. Pettigrew	3	6
188	,, One 20-in. ,, ...	4	0
189	,, Two 20-in. nearly new	5	0
190	,, One 18-in. ,, ...	2	0
192	Wanted,—A large quantity of straight worker comb, Birmingham. State price, &c., to Editor.		
193	Three second-hand ekes, 18-in. diameter each	1	0
195	For Sale.—One of Neighbour's Improved Cottage Hives, minus bell-glasses	15	0
198	Guide-plates (4 × 1½ inches), fitted, with wooden screw-press complete, for making impressed wax sheets	10	0
199	Microscopy.—Willing to exchange first-class microscopic slides, &c., for good swarms. John H. Martin, Mount Pleasant, Tunbridge Road, Maidstone.		

WANT AND SALE COLUMN—CONTINUED.

No.		s.	d.
201	A Cottage Woodbury Hive	15	0
202	An Eleven bar-frame Woodbury hive	7	6
203	Wanted.—Vol. I. of *Bee Journal*. Full price given.		
205	Wanted.—Index for Vol. I. *British Bee Journal*. State price.		
207	Condemned Bees, at per lb., for strengthening weak stocks. Price according to quantity. Lincolnshire (not Epworth).		
208	Unicomb, holds one frame, glass sides, for show	7	6
209	The Improved Cottage Woodbury Hive, made according to directions in *Journal*, and approved by Editor, unpainted. Lancashire	20	0
210	'A Manual of Bee-keeping,' by John Hunter. Quite new. Postage 3*d.*	1	9
211	'The Management of Bees,' by Samuel Bagster, 244 pages, and 40 Illustrations, also 'Practical Bee-keeping,' the two books, post free	5	6
212	'Full Directions for the Management of Bees to the greatest Advantage,' by the able Author, John Keys, also 'Bees: their Habits, and Treatment.' The two, post free	6	6
213	Three Float-feeders, complete, each	1	0
214	Three stocks of Hybrids in Bar-frame Hives on legs with three windows—heavy enough to stand the winter, each	30	0
215	Wanted—Vol. I. of *Bee Journal*; or Nos. 1, 5, 6, 7, 9, 11, 12.—Yeovil		
216	Wanted.—*British Bee Journal* for Sept. 1873, Oct. 1873, March, 1874, and April, 1874.		
217	Wanted.—Vol. I. *British Bee Journal*, 10*s.* 6*d.* cheerfully given.		
218	Several pure Ligurian and hybrid stocks for sale, in bar-frame hives, price according to strength, &c.—Shropshire.		
219	Wanted.—*Journal of Horticulture* posted a week old, state price.—John Walton, Weston, Leamington.		
220	Wanted—A large quantity of pure run honey, state price and quality—to be delivered, carriage paid. Letters to Editor (No. 220)		

Just out.

The 'British Bee-keeper's' Microscope.

A useful and popular Instrument, well adapted for all Microscopic purposes.

It consists of a firm Stand, with Brass Uprights, coarse and fine Adjustments to the Body; ¼-inch Achromatic Object Glass, dividing to ½ and 1-inch; Stand Condenser for opaque objects; Diaphragm; Life-box; Stage and Dissecting Forceps. Complete, in Mahogany Cabinet, £3 10*s.*

Brass Stand Microscope, of similar construction to the above, two Eye-pieees of different powers; ¼-inch Achromatic Object Glass, dividing to ½ and 1-inch; also a 1-inch wide Angle Object Glass, for large objects; Stand Condenser; Diaphragm; Stage and Dissecting Forceps. Complete, in Mahogany Cabinet, £4 4*s.*

Binocular Bodies, with Rack Adjustments, adapted to the above, extra.

Polariscope, and other apparatus, can also be fitted.

J. W. DEACON, Optician, High Street, Sydenham.

THE

British Bee Journal,

AND BEE-KEEPER'S ADVISER.

[No. 30. Vol. III.] OCTOBER, 1875. [Published Monthly.]

Editorial, Notices, &c.

OCTOBER.

The parable of the wise and foolish virgins is exceedingly applicable to bee-keepers, for there are many of the last named who *will not* take the precautionary measures necessary to ensure safety in the future, but who, playing with time, and putting things off until the morrow, find themselves, as did the foolish virgins when the bridegroom came, without light, and with everything neglected; and who can wonder that in such instances there is no pleasant report, or that the procrastinators continue floundering in darkness and difficulty during the whole of the season for which the necessary preparations were omitted? The Americans dread the winter for bees more than *our* easy-going countrymen can imagine, and they take *immense* precautions against the visitation which they know is sure to come, and which often leaves some of them with ruined stocks, which might be counted by the hundred.

They say, practically, show us how to winter bees, and we have *nought* to fear. We (individually) say, Show us how to *prevent foul brood*, and we fear nothing in bee-keeping, for with us wintering is safe and certain, and all other diseases and losses of bee-life preventible.

In all understood disorders, there is or was a time when their effects might, if the symptoms had been looked to, have been rendered impossible, and we say with bee-keeping, that there is nothing which militates against bee-life (save the disease, foul brood, which is not yet understood), that, by the exercise of wise precaution, could not be turned aside or hindered altogether. We are not presuming that the obtaining of large profits is certain, because a great deal in that respect depends upon the weather; and at this season the discussion of the best method of obtaining honey is beside the mark. Our object is to show how bees may be preserved during winter through the rigours and changes of this variable English climate. In many parts of America, when the frost sets in, it may safely be concluded that it will continue for several months at a stretch, and woe betide the bee-keeper whose bees have not been prepared for the coming trial! In England, on the contrary, the weather is variable, and a month's frost is a rarity, and on this account we suppose preparation is by so many thought unnecessary.

The experience of last winter, however, ought not to be allowed to pass unheeded, as during its early months we were favoured with near six weeks of the most severe frost to which England is liable, and such a spell of weather may occur again, as that did, without warning, and find many of us, as bee-keepers, totally unprepared for the visitation. During the past two months we have given many directions for slow feeding (where feeding was necessary), in preference to the rapid system which has so long obtained, and have pointed out the necessity for procuring a hatch of young bees at as late a period as possible, that, being unworked during the winter, would be possessed of the vitality indispensable in the spring, when the duties of the hive are most onerous, and old bees die of overwork by hundreds, and often, too, before the spring hatching of young bees is sufficiently recuperative to maintain the strength of the colony.

By slow feeding, the bees are enabled to store and seal over the food, as they would naturally, and, consequently, those who advocate the 'natural' in bee-culture ought not to object; they also breed as they would if such supplies came in naturally, and to this no one ought to object; but, unfortunately, there are some 'naturals' who are blind to the ways of Nature, and only deem that in accord with her divine laws, which themselves have practised during a long period through their forefathers having mistaken them. Having, then, a good supply of young bees, and a sufficiency of sealed food, there remain two other essentials to the welfare of our colony, viz., dryness and freedom from draught.

This may seem to many to be in non-accordance with the plan adopted by the successful Sussex apiarian, Mr. Cowan, whose beautiful supers have been so conspicuous at both our Palace shows, and who, in practice, appears to dispense entirely with the quilt, the use of which we most strongly urge as of immense general importance, and, in lieu thereof, he raises his

crown-boards all round, and permits the escape of the noxious vapours generated within the hives through the crevices thus made. Now, before it is too late, we would call attention to the fact that Mr. Cowan's hives are not wintered out-of-doors, but are, as we understand, located in lofts and sheds, where, although there may be considerable circulation of air, there is not the liability to direct draught through the hives that there would be in the open garden if the same practice were pursued. Nor are the hives so liable to the effects of the attenuation which is caused in the atmosphere by the passing of violent gusts and storms, which, as it were, pulls the warm air from within the hive, and causes, when the balance is resumed, the ingress of fresh, but cold air. Those who choose to experimentalise in this respect out-of-doors may do so, and we shall be glad to publish the results; but in all cases we shall use the quilt, and recommend others to do likewise.

In applying it, we prefer that next to the frames and bees there should be a layer of material which the bees cannot easily gnaw; and hitherto we have used carpet, under-side downwards: but from that it must not be inferred that nothing else will do as well. We have been casting about for a material that the bees cannot bite or tease, as they do all fibrous substances more or less, and have hit upon the material with which strainer-sieves are bottomed, which, being of close texture, and hair withal, we think will answer the purpose better than anything else, as it may be scalded at any time to free it of propolis, should any be applied, and, being very light, may be laid upon the bees on the bars without injuring them; but whatever material is used, we must caution our readers against the folly of placing the crown-board on the top of it. Our method is to place the quilt close on the frame-bars, and upon it place several layers of carpet, felt, or matting, or a pillow of chaff, or any other light porous material, so that there may be a gentle escape of the vapours of the hives without perceptible draught. In all cases there must be provision for the passage of air through or under the roof or cover, or otherwise the risen vapours will condense, and, falling, will soak the quilt and its counterpanes with moisture.

Bees Clustering in Winter.—After the severe frost of last December, on examining our hives, by turning up the quilts, we were considerably alarmed at finding in one of them which contained only six combs (Woodbury) that by some accident they had become widely separated in the centre at one end, forming a broad V, each side being composed of three combs, and the point of the V being against the front of the hive. Our first idea was that the bees must have perished, having only three combs on either side to cluster in, but to our astonishment we found the bees clustering in the open space in the centre of the hive, attached to the quilt, and to both the combs on the inner side of the V, in perfect health; and although slightly torpid showing no signs of distress. There were no dead bees, nor any dampness in the hive, and, excepting their naked appearance while clustering as a swarm, all seemed snug and comfortable. Judging from the fact that bees in hives only partly filled with combs, indeed with combs barely sufficient to afford them shelter (?), generally do well, it occurred to us that possibly the too many combs, especially when they contain pollen, might be prejudicial to the well-being of colonies during winter while breeding is suspended; and not long after we found that the Americans (as usual) had already observed the fact, and were recommending that during the non-breeding season, one or more of the combs of a hive should be extracted, and that the frames in which the bees are to cluster should be put further apart. There is room here for a good deal of consideration, whether it would not be a good plan in wintering bees, to give them extra bottom space, so that if their combs are inconvenient to them, they may cluster below them as they do in a hive only half filled with combs. Again in another hive, one of the New Frame-bar hives, in which a July swarm had only about half filled the combs, our junior, to make the bees build more, had turned half the combs round so that they barely met in the middle of the hive, and forgot the circumstance; yet on examining them after the frost, they were found to be perfectly healthy and dry, and in the spring were amongst the earliest to swarm. These facts we must leave to speak for themselves—their evidences are only sufficient to induce further experiment, and until we know a little more of the subject we shall abstain from positively recommending it.

Winter Passages.—Whatever else is improved, the necessity for winter passages through the combs may be taken for granted, and we recommend that every comb in a hive should have one or more small holes bored through it with an instrument like a cheese-cutter, so that the bees may be enabled to get from comb to comb without being compelled to go over, under, or round the edges of the combs.

Stopping the too rapid Circulation of Air.—We have often advanced that the chief reason why bees winter better in skeps than in frame-hives is, because in the former there is no circulation of air, and consequently no loss of heat (except by absorption against the front and back of the hive), from its passing round or over the combs, and finding its way into the

cold parts of the hive. In bar-frame hives space is left between the frame ends and the back and front of the hive for the convenience of the bees, and we say that round these conveniences much heat is dispersed, and extra labour is continually imposed on the bees in its reproduction. To prevent this, we recommend that practically the hive be divided into three or four sections by the insertion of some strips of wood, each of about half an inch square, which shall be thrust down at the ends of every third or fourth frame to fill up the spaces between them and the hive. This will prevent the necessity for division-boards, as the combs will act as such, and yet permit of the increase of the brood-nest if the bees require it.

CRYSTAL PALACE BEE AND HONEY SHOW.

The Second Crystal Palace Bee and Honey Show took place on 21st, 22nd, and 23rd Sept. last, and the bee-keepers of Great Britain may congratulate themselves on the spirit and enterprise which produced so excellent an exhibition in the face of the many difficulties which stood in the way of success. We suggested in our last, that though the weather might influence the yield of honey, it could not hinder the production of hives and bee-furniture, nor interfere with the success of the operations in the manipulating-room; and in the first instance we were right, for a larger or better exhibition of bee-gear has never before taken place in this country; but with regard to the latter we were wrong, for the hives of bees, which had been purchased of cottagers in the vicinity of the Palace, were so wretchedly poor both in bees and provender that every attempt to show how to deprive bees of their honey in autumn as we have recommended, and to utilise what otherwise would be thrown away, was simply absurd. There were fifteen skeps 'operated' on, and in only one solitary instance was there any appearance of honey such as could by any chance suffice for winter uses; and in every other instance the bees *must* (but for the uniting to which they were subjected) have succumbed during the coming cold season. There being no honey, it was impossible to show the new method of depriving in autumn by actual demonstration, and the operations therefore were confined almost wholly to driving the bees, transferring the combs, and uniting the driven swarms. These operations, poor as they were, were sadly marred by the paucity of the bees, which in some instances were so few in number as to be able to dispose themselves around the bottom rims of their hives, whence (being clear of the jarring of the combs) they refused to move, as is usual with them under such circumstances. With such stocks there was no work for the Extractor, but some frames of comb, taken from bar-frame hives kindly lent by Mr. Cheshire, were relieved of their contents in a most satisfactory way, and fully proved to the interested visitors the value of the machine for the purpose intended.

We will, however, revert to the show of hives, honey, &c. Entering the Palace from the southern end, the first objects in the bee-line that attracted the attention of visitors were the jars and glasses of honey exhibited for sale at what was the first attempt to establish a honey fair. Sparse, indeed, was the exhibition in this behalf, the weather during the past season having rendered the production of the coveted nectar almost impossible. There were, however, several glasses which, from the brilliancy of their contents, were evidently filled with honey of the finest quality, and such at reasonable prices found ready sale. Proceeding onward, the stall containing the goods and wares of Mr. Marriott, the resident bee-master at the Palace, next claimed attention. There were the usual cottagers' hives, *i.e.* one skep on another, with glasses for supers in the upper story, each furnished with the almost obsolete ventilator which the bees usually nullify by immediately closing with propolis all the holes in it, proving that well-intentioned *conveniences* are not always appreciated by them. Passing the flags which bounded the space allotted to this veteran exhibitor, we come upon the full-blown exhibit of Messrs. Neighbour and Sons, of Regent Street, London; and here might be found almost everything in the way of appliances that an *advanced* apiarian could wish for. Enumeration of the articles exhibited is impossible within the space apportioned, but one or two noticeable features must not be passed over. Of these the Gravenhorst hive claims first attention from the novelty of its arrangement. It is a straw hive, about 30 inches long, 20 inches high, and about 14 inches from front to back, outside measure; it contains fifteen frames, in form like garden arches, and the peculiarity of their arrangement consists in their being moveable from the bottom of the hive only, for, strange though it may appear, the crown of the hive is 'solidly' wrought of straw, and has not even the semblance of a feeding-hole. To remove the frames it is therefore necessary to turn the hive upside down, or at any rate to lay it on its back, and this we fear is not an easy task, for the hive when well stocked will weigh little less than a hundredweight. There was the usual display of hives of nearly every description, from the simplest skep to the most elaborate bar-frame hive, and to this huge *collection* was awarded the first prize. Next followed our own collection of hives, &c., of various

kinds, hives being the chief, and variety the most striking feature in it; there were included two specimen plants of the celebrated Mellilot clover, one of one year's growth, being about 2 ft. high, and full of blossom, and the other, two years of age, being nearly 11 ft. high, still bearing blossom, but only in sufficient degree to indicate its character, the enormous quantity of seed showing the prolificness of the plant, and bearing testimony to its flowering propensity. Next but one came the stand of Mr. James Lee, of Bagshot, containing some excellent specimens of workmanship, principally the Abbott, Cheshire, and Carr-Stewarton hives of the past year. To this collection and that of ourselves, were awarded equal second prizes, the former for workmanship, the latter as last year for variety. Parenthetically (if we may use the term), between the two collections just named, came the neat little exhibition of the famed hives of Mrs. Pagden, of Alfreston, whose late husband did so much to foster humane bee-keeping, by his useful little work showing '*How I make 70l. a-year by my Bees.*' The hives were of straw of the usual description, and remarkably cheap. We next come upon two of Marriott's observation hives, filled with combs of a past year, but labelled 'not in use.' This, however, was not correct, for the wax-moth had in both cases taken possession, and its worms were traversing them in all directions with their fibrous channels, and affording excellent examples of the effect of neglect of combs. In the classes in the order of their sequence commencing with Class 1 for the best hive for observation purposes Messrs. Neighbour and Sons took second prize, the first being withheld, with their Unicomb of the old pattern to contain six Woodbury frames, a prize which last year was altogether withheld from similar exhibits, because they contained no novelty.

In Class 2, for the best moveable comb-hive for depriving purposes, there was a smart competition, including hives by Messrs. C. N. Abbott, Hooker, Cheshire, Rusbridge, Poole, Dixon, Lee, Hale, King, Baldwin, and the Messrs. Neighbour; and as each of the exhibitors had the right to explain to the jury of judges (for *all* the judges with Mr. Alfred Neighbour as their foreman and referee, were engaged with the hives), the supposed merits of their particular inventions, considerable time was occupied in going through this class, which however resulted in the first prize and silver medal being awarded to the Editor of the *British Bee Journal*, and the second with bronze medal to J. M. Hooker, Esq., of Sevenoaks. In regard to *our* hive, we intend, as soon as is compatible with the labour imposed by the Show, to illustrate and show how to make it, and hope also to be enabled to illustrate and describe the 'Hooker hive,' which at present time and want of space prevent. We must, however, to give credit where it is due, inform our readers that our esteemed friend and fellow-medallist was in a degree hoist on his own petard, for the idea which led to one of the improvements in our hive—viz., the simple means of locking and relaxing the ends of the frames,—was first imparted by him, although, singular to say, several other gentlemen have during the past summer 'hit' upon the same; and to the Rev. J. D. Glennie, of Croxton, Eccleshall, we are indebted for the suggestion which led to the improvement on the hive's sides, by which lateral space is gained without removing the dummy, and in the simplest possible way. We may here remark that our first notion of a moveable dummy, the greatest improvement until now introduced into frame-hives, came from Mr. Hooker, and it was in consequence of *it* that the Rev. Mr. Glennie imparted his mode of space-making for obtaining lateral movement, and which have led to our success in this instance.

In Class 3, for best hive on the Storifying principle, both silver and bronze medals were carried off by C. W. Smith, Esq., with his celebrated Carr-Stewarton; the silver being awarded to the wooden, and the bronze to the straw hive. There were ten competitors.

In Class 4, for the best hive on the Collateral principle (two competitors), the first prize was awarded to J. M. Hooker, Esq., of Sevenoaks, and the second to Mr. W. J. Pettitt, of Dover, the former with a new hive on stand with gabled centre and lean-to on either side, the latter with his twelve-framed Sibertswold hive and division-board.

In Class 5, for the most economical (best and cheapest) complete hive on the moveable comb principle for cottagers' use, the first prize was awarded to Mr. C. N. Abbott, of Hanwell, for a hive priced at 10*s.*, comprising hive,* floor-board, super case, and roof; and the second to J. S. Wood, Esq., of Denmark, for his 'allotment hive' at 10*s.* 6*d.*, a very neat and well-made affair, and remarkably cheap withal. Mr. Wood also exhibited a couple of three-storied hives on the Berlepsch principle.

In this class Mr. Drake exhibits a 10-bar frame hive, with crown lid, for 2*s.*; it is made of unplaned stuff and seems cheap, but as the arrangement of frames is radically wrong, it cannot be recommended.

Class 6, for the best and cheapest skep, Messrs. Neighbour carried off the first prize with a Pettigrew hive, at 4*s.* 6*d.* Mrs. Pagden

* Here, again, Mr. Hooker's idea was utilised, and he, although a competitor, was hit (not wounded we trust) by an arrow for the guidance of which himself furnished the feather.

coming in second with her neat little skep at 1*s.* 9*d.*, size being apparently the point appreciated.

Class 7, for the best species of honey bees (capable of cultivation in England), other than the Ligurian or black bee. In this class Messrs. Neighbour exhibited some Smyrnian and Cyprian bees, and Mr. Hunter some Carniolian bees; but to ordinary observers, while the latter (although much like the English black bee) were remarkably gentle, the former appeared very much like Ligurians, and to *manipulators* they *acted* like bad-tempered hybrids, stinging most fiercely. These latter were on view at large, in the operating room, but as their character and value have to be proved, the prize was withheld as undetermined.

In the honey classes the display did not nearly equal that of last year, still some wonderful supers were shown. Undoubtedly the magnificent octagon super from Kingsbridge, Devon, was the grandest thing of the kind in the Show, being of a gross weight of 93 lbs., and containing 86 lbs., net weight, of splendid honey in the comb; yet it was disqualified. It had been entered in Class 8, for the special prizes offered by the Hon. and Rev. H. Bligh and E. Melladew, Esq., 'for the largest and best harvest of honey in the comb, from one stock of bees, under any system or combination of systems,' and was accompanied by the actual skep upon which it was said to have been filled, in the south of Devon, 'from wild flowers, no limes or heather,' was put on 'empty May 4th,' the bees 'commenced working in it May 13th,' and it was 'removed July 30th,' quite filled. The skep was nearly semi-spherical in shape, and contained eleven combs, the largest (the most central one) being $7\frac{3}{4}$ inches deep in the centre, and $14\frac{1}{2}$ inches long on its bottom edge, the others (in such a shaped hive) were of course 'smaller by degrees,' the outermost not being larger than the palm of the hand. The skep measured inside 16 inches in its longest diameter, and 15 inches in its shortest, and was 8 inches high, while the octagon super was $18\frac{1}{2}$ inches between its parallel sides, and $10\frac{1}{2}$ inches deep; and it seems to have been thought impossible that so large a super could have been filled, according to the stipulations of the class, from so small a hive, and it was disqualified accordingly. We forbear any remark upon the matter, as it will doubtless be a fruitless subject of discussion, and we fear a lasting cause of bitterness.

The first prize in this class (five pounds) was taken by T. W. Cowan, Esq., of Horsham, with a pair of bar supers of a total weight of $80\frac{1}{2}$ lbs., obtained as follows:—

'The stock which produced these two supers is situated in a loft over a stable facing the south in Horsham, Sussex. It was a swarm hived on 3rd May, 1874, and in the autumn of that year a super, weighing 34 lbs. was taken from it. It was then prepared for wintering in its Woodbury frame hive by having two of the outside frames removed, from which the honey was extracted, and the combs laid by for future use; two dummy boards were then introduced to contract the size of the hive. The bees were then gently fed until the end of October. The hive was wedged up an eighth of an inch from the floor-board, and the cover was also wedged up an eighth of an inch for winter ventilation. A piece of cloth was placed over the feeding-hole on crown-board. The hive was then left and not disturbed until 10th March, 1875, when the crown-board was removed, and three of the combs were also removed, and the bees brushed back into the hive. The hive was then closed, and on the 11th the five frames remaining were transferred to a clean hive, two of the combs having the cells uncapped to allow the honey to run among the bees. On the 13th the hive was examined, and it was found that the queen had commenced egg-laying. The hive being very strong the remaining combs had their honey-cells uncapped, and two frames of comb from which the honey had been extracted placed between the others; the hive was then closed, and on the 25th all the sealed honey-cells were again uncapped, and the remaining empty combs placed between the others. A bottle of extracted honey from this hive was then placed on the hive, feeding through three holes. On the 31st of March all the honey-cells were again uncapped and the honey extracted, and feeding continued until the 20th April, when the hive was again examined. During this time artificial pollen was supplied, which was eagerly carried into the hive until flowers supplied it naturally, when the flour was discarded. On the 29th April all the honey was again extracted and the feeding continued, and on the 28th, on examining the hive, it was found to contain brood in all the ten frames, and the hive was ready to swarm, queen-cells having been raised, these were cut out and a bar super provided with a bee-trap placed on the top of hive. On the 29th, the bees were found clustering in super, when a perforated zinc adapter was placed between super and hive. The super was nearly filled by the 10th of May, when the top was removed and a second super placed over the first. The bees were then not interfered with until 23rd July, when the top super was removed, weighing 37 lbs. and a board screwed on the lower super. On the 24th July the lower super was removed, weighing $43\frac{1}{2}$ lbs., and an empty one furnished with guide-sheets put in its place. In this one the bees commenced comb-building, but have not stored any more honey except in stock-box. This super was removed on 13th September, and 20 lbs. honey has been extracted. Feeding was then commenced to prepare the hive for wintering, which will be ready by about the middle of October. Last year my apiary consisted of twelve stocks, in the autumn they were all strengthened with bees driven from cottagers' hives, and in addition two stocks were made by uniting driven bees in October and starting them in empty hives by feeding on syrup. The twelve hives last year produced 707 lbs. of super honey, and 200 lbs. of extracted honey. This spring I started with fourteen hives, three of which had foul brood. They were deprived of their combs and had to start afresh. Three others had foul brood and the diseased combs were excised and the stocks have since done well. By artificial swarming I have increased my stocks to twenty-four, sixteen of which are Ligurians and four hybrids. The honey in this locality is gathered mostly in May and June, from fruit-trees in the orchards and flowers in the meadows.'

The second prize was obtained by Mr. Withnall, with a beautiful glass of 53 lbs. weight; the third, by the Rev. F. T. Scott of Sibertswold, with two supers on Sibertswold hive,

weighing 42½ lbs. net;* and the fourth by Mr. W. Martin. There were seven entries.

In Class 9, for the best exhibition of super honey from one apiary (two entries), only a third prize was awarded to Mr. J. Lighton. Class 10, however, for the best straw super, produced nine entries, for which there were six prizes, three of which were carried off by F. R. Jackson, Esq. of Slindon, who took the third, fourth, and sixth, Mr. J. Lighton having secured the first, Mr. Martin the second, and the Rev. C. N. Gray the fifth.

In Class 11 there were thirteen entries for the best wood (or wood in combination with glass or straw) super of honey. Seven prizes were offered, but only two awarded, the first to Mr. A. Rusbridge for a whitethorn and clover bar-frame super of 41½ lbs.; the second to Mr. Cowan, for a box bar super of 53½ lbs. weight.

Class 12, for the best glass super of honey, produced fourteen entries, for which seven prizes were awarded—to Mr. J. Assbee, Mr. W. Martin, Mr. F. G. G. Lines, Mr. J. Shield, Mr. C. Young, Rev. C. N. Gray, and Mr. W. O. B. Glennie respectively, the most noteworthy feature in the whole being the super of Mr. Lines, which was produced from the limes at Notting Hill.

Class 13, for a device in honeycomb, produced no entries.

Class 14, for the best exhibition of run or extracted honey, produced six entries, Messrs. Neighbour being first; Mr. Walton of Leamington, second; and Mr. A. Rusbridge, third, with honey from whitethorn and clover, which, it would appear, grow together at Sidlesham.

In Class 15, for honey in sectional supers, there were two entries, but only one (the first) prize awarded, to the Hon. and Rev. H. Bligh.

In the Cottagers' Classes, in Class 16, for the largest and best exhibition of super honey in comb (three entries only for six prizes) the first prize fell to Mr. J. Walton, for 50 lbs. net; the second to Mr. W. Martin; and the third to Mr. M. Freeman, for 43½ lbs.

In Class 17, for the best super of honey, there were five prizes and six entries; and the prizes were awarded to Messrs. Martin, Ellingham, Walton, Clayden, and Ellingham, in their respective order.

Class 18, for run honey in glass jars, produced five entries for six prizes, which fell respectively to Messrs. J. Clayden, W. Scorer, W. Martin, J. Walton, and Mr. W. T. Ellingham. This ended the honey classes, which, upon the whole—considering the season—were very creditably supported.

In Comestibles—Class 19—there were five entries for the best liqueurs or wine made from honey with recipe attached; the prize was, however, awarded to Mr. J. G. Desborough for two bottles of sack mead brewed in 1847 and 1851. With these exhibits some rather unbecoming tricks were played, such as we hope in future will be prevented. Mr. Bagshaw, of Longnor, kindly forwarded some 'honey drink,' of which two bottles each were to have been given to certain members of the Committee; but one only out of the two intended fell to our share, the other having been drunk. Again, Mr. Desborough kindly left us the reversion of his exhibit, brewed in 1851; but only by the odour of the bottle could we possibly judge of its quality, as some 'practical joker'—who ought to have been detected—had emptied it before the end of the Show. We may here mention that a very large number of articles—some of considerable value—were taken from the stalls by the same kind of 'jokers,' notably, the highly-ingenious multiplying gearing and handle of Novice's Extractor—the only pattern in England; and unless the thief will kindly forward a copy of it when he has made his castings, it will be necessary to send to America for a duplicate.

In Class 20, for honey sweetmeats, with recipe, there was no entry; and Class 21, for cakes made with honey, with recipe attached, the prize of 1*l.* was awarded to Mrs. Jones.

We now pass on to the Miscellaneous Classes, the first of which—Class 22—was discussed at the commencement of this article; and proceed to Class 23—for the best Drone Trap. For this there were only two entries, Messrs. Edwards and Cheshire, of whom the latter received the award; although the former originated the idea, and offered an exhibit far more substantial at 1*s.* less money,

In Class 24—for the best Bee-feeder, the invention or adaptation of the exhibitor. In this class there were 14 entries, including a wholesale arrangement by Mr. Cowan, by which the food was conveyed in pipes from a cistern to the bees. There was also a bottle exhibited by Mr. A. Dixon, which approaches more nearly to what is wanted, it having an opening on top by which food could be poured in, but there was a defective arrangement at bottom which would allow the food to escape while being poured in which was fatal to it. The prize, as per printed list, was awarded to Messrs. Neighbour for their bottle arrangement; but that we are informed is incorrect, and that it was awarded to Mr. Cheshire for his vulcanite stage, value 8*d.*

For the best method of quieting bees (Class 25) Mr. Cowan came to the front, beating the Hon. and Rev. H. Bligh and Mr. Cheshire, who were the only other exhibitors. We hope to

* The description of method of management will appear next month.

be allowed to illustrate Mr. Cowan's invention in our next.

For the best and cheapest supers for general use in an apiary (Class 26), Messrs. Neighbour obtained the prize with a set of sectional supers fixed on a frame, but capable of easy removal.

In Class 27—for the cheapest, neatest, and best supers for producing honeycomb in saleable form, the sectionals again came to the front, but this time in the form of tin boxes packed close to each other, and intended to be placed upon perforated zinc adapters, the ingenious Mr. Cowan being the distinguished exhibitor. The next class (28) for the best Honey-Extractor, portability and cost to be taken into consideration, there were ten entries, including that of 'Novice,' the great American 'authority,' whose machine, with numerous other articles, had been imported by Mr. Hunter to give an impulse to English inventors. The first on the list was Mr. Walton's, priced at 35*s.*, the counterpart of which was awarded first prize at Glasgow at the late exhibition, and being light and handy is a very useful machine for cottage use. The second on the list was Mr. Cowan's 'Cottager's' Extractor. It is a machine on the revolving-can principle, certainly an advantage as regards the prevention of undue circulation of air, and the consequent chilling of brood, but as its motion is communicated from the bottom (the gearing being encased in the box upon which the machine stands), and it revolves upon an upright shaft, offering no means of steadyment by holding at the top, we fear it will not in use be quite as steady as is desirable.

The next, Mr. Cowan's 'Amateur's' Extractor, is an improvement on the latter, and being all iron, may be supposed to be everlasting, but there was nothing special in its construction. The 'Rapid' also, by Mr. Cowan, was a much more ingenious affair, and attracted considerable attention. It is all iron, and its revolver, which has no perpendicular spindle, has two wire cases, hinged at opposite corners, into which the unsealed combs are to be placed, and when the honey is extracted from the outside cells, their inner sides are swung round to the approximate sides of the revolver, and the honey slung out without their removal being necessary. There may be some little difficulty in getting the combs into the wire cases, as, unless quite straight and even, their sides would be abraded; but a little ingenuity on the part of the inventor will overcome that difficulty. One other defect, as it appears to us, consists in the fact that to obtain the reversal of the combs, a portion of each side of the square revolver is taken up, which otherwise would permit of the use of larger combs within it. Some outside observers considered the iron revolvers would soon become rusty and spoil the honey, forgetting that the machines were simply patterns, new and hand-made, and probably unaware that all future machines will be perfectly galvanised throughout. Exhibit 161 came next in order, the manufacture of Mr. King, of Stoke Goldington, for extracting combs singly, but it was not staged in time to be judged, through some delay on the part of the railway company, consequently it lost its chance, notwithstanding which it is a useful cottager's machine. Starling's was next in order, a copy of the American machine by Murphy, and but for its cost and the space it occupies it cannot easily be beaten. Aston's was similar to one exhibited by him last year, but it was damaged and could not be worked; it has also the demerit of clumsiness in appearance, and cannot be put out of the way, although it might be utilised as a washing-tray or some similar convenience. Starling's No. 2, the next on the list, contains the elements of a useful article It is enclosed in a box of cubical form, which, if properly constructed, might, when not otherwise in use, be utilised as a cupboard or table-topped locker, an arrangement which would necessitate the removal of the knobs and fastenings from the top surface to the sides, and would greatly increase its usefulness. Internally this machine is of the Peabody construction, having an oblong revolving can, and is sufficiently large to take almost any sized frames. 'Novice's' Extractor was the last on the list, and was the neatest and liveliest machine at the Show, its gearing being peculiarly nice. It is a cylinder machine principally composed of tin, with square revolver, capable of taking almost any frames in use, and when set in motion did not know when to stop; it was, however, considered to be too light for English wear, and the judges, after considerable deliberation, awarded the prize to Mr. Cowan for his 'Rapid' Extractor.

In Class 29, for the finest sample of wax, the produce of 1875, Mr. J. M. Hooker gained first prize, followed by Mr. W. Scorer, second, and Mr. T. Thorne, third: there were seven exhibitors.

In Class 30 there were twenty exhibits, 'new inventions calculated in the opinion of the Judges to advance the culture of bees.' Undoubtedly the most interesting of these was the means adopted by Mr. Cheshire for forming impressed wax guides in frames. The wax is melted in a glue-pot; the frame is laid close to a casting of plaster bearing the impression of comb foundation; this plaster lies in a zinc trough containing water, and is consequently always wet by absorption, so that the wax will not stick; and when the frame is applied the wax is painted on with a brush, coating the

whole of the plaster surfaee with a moveable wax plate, which, however, adheres to the frame-bar, and forms an excellent guide. To this was awarded a silver medal. A silver medal was also awarded to Mr. Hooker for his ingenious blocks for making frames and boring holes for nailing, which must, however, be seen to be appreciated, as they are not easy to describe. They do their work well, as was proved at the Show-table, where Mr. Hooker made numerous frames, and Mr. Cheshire immediately applied the wax-guide. To Mr. J. S. Wood of Denmark, a bronze medal was awarded for his apparatus for laying wax-guides, the only objection to which is that it has no water-bath around it, and the wax is consequently liable to be burned. A bronze medal was also awarded to Mr. W. Carr of Clayton Bridge, for improvements in his queen-cages. There were many other exhibits in this class of interesting character, but time and space prevent their description at present.

In Class 31 Mr. Carr exhibited a choice collection of natural objects illustrating the natural history and economy of the bee, for which he obtained a second bronze medal. The list of objects must, however, be deferred.

In Class 32 for the best MS. Lecture on Bee-keeping with or without diagrams, there were four entries, by Mr. J. G. Desborough, Mr. W. Hunt, Mr. J. N. Coleman, and the Rev. J. D. Glennie, and to Mr. Hunt was awarded the prize of five pounds, the lecture to become the property of the Association. Considerable interest was felt in this matter, and it was hoped that the lecture would be delivered on at least one day at some convenient time during the Show, but there appeared to be some difficulty as to a lecture-room, so the proposal fell through.

In Class 33, for micro-photographic slides for use in magic lantern illustration of bees, there was no entry; and the Variety class contained nothing new, save the wax proofs of prize medals, as to which opinions differ, and an exhibit by Mr. J. S. Wood, of a large package of phacelia seed, which found an eager purchaser in Mr. Symington.

We have now run through the whole Show, and, as well as our power of description permits, have endeavoured to convey an idea of the merits of the respective exhibits. We regret exceedingly that the shortness of the time between the Exhibition and *the end of the month* has prevented our procuring illustrations to render them more easily understood. We trust, however, that exhibitors will favour us with photographs of the exhibits they consider of service to the cause, and with them their own descriptions; for it is possible that in the hurry and excitement of judging some good things may have been overlooked, and but for adopting this course may drop into oblivion, and be lost to the bee-keeping world.

General Meeting of the Association.

The Annual General Meeting of the Association took place in the Board-room of the Crystal Palace on Wednesday the 22nd ult., Mr. Cowan in the chair; but, owing to the books and papers relating to the Association having been temporarily lost on the railway, we are unable to give full particulars of the resolutions, &c., which were passed. Briefly, the Hon. Sec., Mr. Hunter, tendered his resignation after two years' 'hard labour,' which was accepted; and it was resolved, in recognition of his services, to present him with the thanks of the Association and a purse of money. Sir John Lubbock was re-elected President; all the Vice-presidents were re-elected, subject to their consent. Mr. E. L. Cleaver, of No. 1 Devonshire Terrace, Kensington, was elected Hon. Sec., and Mr. C. N. Abbott Treasurer, for the year. Messrs. T. W. Cowan, F. Cheshire, C. N. Abbott, J. Hunter, J. M. Hooker, C. Atlee, A. Neighbour, W. Hughes, G. Henderson, C. H. Edwards, F. G. Bose, G. Walker, F. R. Jackson, the Rev. J. D. Glennie, and the Rev. J. G. H. Hill, were unanimously elected to form the Committee for the year ensuing. Patronage from gentlemen of position was invited, and various measures for the advancement of bee-culture discussed; and now that fresh blood has been imported into its management, and after much experience, we have every confidence that something will be done during the ensuing year to carry out the objects of the Association.

THE APICULTURAL SHOW AT GLASGOW.

This most interesting exhibition of honey and apicultural appliances came off on Wednesday, September 8th, in the lesser hall adjoining the City Hall of Glasgow, forming a most attractive adjunct to the wonderful display of fruit and flowers exhibited in and around the latter. The show took place under the auspices of the Caledonian Apiarian and Entomological Society, which was formed about a year ago; and this first effort, extending to apiculture only, was a great success, notwithstanding the extreme disadvantages under which bee-keeping has laboured during nearly the whole of the past season.

The honey was of the richest and purest kind, fit for the table of royalty itself, possessing a richness of light colour and a deliciousness of taste gratifying alike to the eye and the palate. The money value of such a class of exhibits must have been very great.

The attention of the organisers of the show was most particularly directed, not so much to exhibit good pure honey in abundance, as practically to teach the bee-keeping world the really humane and scientific method of treating bees. No one has ever suggested as the best means of obtaining eggs to kill the hen, nor of securing good fruit to cut down the trees; and yet up to a very recent date in most places it was accepted as an inevitable law that no honey could be obtained until the bees that made it were all destroyed by the fumes of burning sulphur. The exhibits in the Hall, however, prove most satisfactorily that very superior results can be obtained by proper care without the wilful destruction of one single bee, and that by adopting the improved kind of hives bee-keepers can utilize to an extent hitherto unknown the vast power of honey formation which bees naturally possess. It is anticipated that in future years this exhibition will be more generally and generously supported by those for whose good the originators have arranged this most excellent inaugural meeting, many additional members having been enrolled at the meeting of the Society which took place at M'Innes' Hotel, after the show had been formally opened, and the judges had made their awards. The judges were Messrs. J. Lauchland of Kilmarnock, James Anderson of Dalry, Alex. Shearer of Yester Gardens, and M. Walker of Glasgow; with the Editor of the *British Bee Journal* as referee in case of a difficulty in coming to a decision. The awards for flower honey were:—For the largest and best display of honeycomb; 1, J. Anderson, Dalry; 2, D. Anderson, Dalry, with a splendid lot of fine Ayrshire supers, such as last year graced the tables of the Crystal Palace Show; but which, as events have proved, were this year 'conspicuous by their absence.' For a pair of supers, each above 18 lbs. weight—Mr. W. Dick, Kilburnie, was first; A. Fergusson of Stewarton, second; and J. Muir of Fenwick, third, There were four exhibits in this class, and some difficulty was found in awarding the prizes as they appeared so nearly alike in beauty and finish, but by casting out the worst pair, and searching for the *defects* in the others, they were eventually arranged. For single supers above 20 lbs. D. Wallace of Rothesay was first, with a magnificent super from white clover; J. Boyd, Kilmaurs, second; and A. Montgomery also of Kilmaurs, third. For run honey there were numerous entries, and a close competition, the quality being excellent and colour and consistency various; but no difficulty arose in awarding the prizes. A. Montgomery of Kilmaurs being first; W. Dick of Kilburnie, second; and J. Muir of Kilburnie, third. In glass supers, which were not equal to the hexagonal boxes in size or apparent richness, W. Dick was first; T. Clarke of Kilburnie, second; and T. Peden of Blantyre, third. In heather honey the exhibits were sparse, the season not being over, and the bees yet on the moors; the first prize was awarded to David Anderson for two supers above 18 lbs. each; while for a super or glass any size, D. Paterson of Struan received the palm.

For wax, best sample not less than 1 lb., Wm. Lauchland was first, and A. Montgomery second; and for wax-sheets impressed, James Baillie and Archibald Montgomery, both of Kilmaurs, took first and second prizes, and William Thompson, of Blantyre, the third. For the best and most perfect bar-frame hive, the highest prize (a first certificate) was awarded to the frame bar-hive of the Editor of the *British Bee Journal*. For the cheapest bar-frame hive there was only one exhibit, the Crystal Palace Cottagers' hive, and consequently there was no award, the rule being that there must be three exhibits to form a competition. For the best and most perfect hive on the storifying system, the Carr-Stewarton, invented by C. W. Smith, Esq., of Totteridge, came into competition with the true octagonal Stewarton, and some square sets of same dimensions as the first named, which were on sale at 9*s*. 6*d*. per set of three; but as cheapness was not a feature in the conditions, and the Carr-Stewartons contained frames, and was of the finest workmanship by Lee of Bagshot, it carried off the palm. In the class for Honey-Extractors there was only one exhibit, that of Mr. J. Walton, of Leamington, but which was so simple in its construction, and worked so steadily, that it was unanimously awarded First Prize. For honey confectionery there was no exhibit; and for the best executed model in wax there were, as has since appeared at the Crystal Palace Show, only some wax figures cast in jelly-moulds, they were not esteemed within the intention of the conditions, so no prize was awarded.

In the afternoon the members of the Glasgow and West of Scotland Horticultural, and the Caledonian Apiarian and Entomological Societies, dined together at the Royal Restaurant, West Nile Street, the tables being crowded with guests; among whom were our esteemed friend and fellow-visitor, J. M. Hooker, Esq., of Sevenoaks, as representing southern apiarians, and several representatives of noted firms of English horticulturists. During our short stay in Glasgow, we had the honour of meeting many of our northern apiarian friends, and enjoyed the pleasure of visiting the apiary of our enthusiastic contributor, 'A Lanarkshire Beekeeper,' whose numerous contrivances on behalf of bee-culture entitled him to a foremost place in apiculture, and to whom, in conjunc-

tion with J. Wilkie, Esq., of Gourock, and R. J. Bennett, Esq., of Glasgow, is due the entire merit of originating and promoting the Association, and conducting this first apiarian exhibition to a successful issue. We had hoped to have been enabled to make the personal acquaintance of that great authority on bee matters in general, and the Stewarton system in particular, the 'Renfrewshire Beekeeper,' but he being from home the pleasure was denied us.

Our visit to Lanarkshire was, however, sufficiently interesting to merit description, and we hope on a future occasion to revert to it. While thus playing truant an opportunity offered for steaming down the Firth of Clyde to Ardrossan by Arran, and the day being fine the scenery was magnificent and glorious. We cannot describe it if we would, and only those who have under similar circumstances been on board the *Iona* can understand the exquisite pleasure it afforded.

OUTDOOR BEE EXHIBITION AT STAMFORD.

In our last publication we slightly alluded to the projected exhibition of bees at the combined show of the Northampton Agricultural and the Stamford Floral and Horticultural Society, to be held in Burghley Park, on Wednesday and Thursday, 15th and 16th September, and we have now to record the complete success which has attended the exertions of the promoter of the exhibition, Mr. J. G. Desborough, who has devoted the leisure time of a long life to the study of the management of the honey-bee. The arrangement of the exhibition was very similar to that adopted at Grantham. A shed, 32 feet long and 12 feet wide, was erected for the public with a netted front, looking into an enclosure, canvassed out of the show-ground about 20 feet in front of the shed. Along the back of the shed, a variety of bee-hives and bee appliances, kindly lent for the occasion by Messrs. Neighbour and Sons, Mr. Abbott, and R. Symington, Esq., as well as three small Observatory unicomb hives, stocked with bar-frames from the apiary of the latter gentleman, formed almost as interesting a feature in the exhibition as the operations on the 'live bees' in the enclosure. Our keen-sighted veteran promoter foresaw that the attraction of the renowned Burghley House and Park, added to the cattle and implement show, coupled with the very liberal prize list offered by the Horticultural Society, would bring an immense number of people to Stamford, that the attendance of visitors to the show would be counted by thousands, and that his exhibition from its novelty would be certain to receive a fair show of patronage; that it would be impossible for him, single-handed, to carry on the operations in the enclosure and explain to the public the why and wherefore of what was going on at the same time, so he wisely solicited and obtained the assistance of the Editor of the *Journal* and Mr. Symington; and from the time the doors of the shed were opened to the close of the exhibition on each day, all three were fully occupied in the enclosure in driving bees, picking out and exhibiting the queens, to the wonder of the *thousands!* Yes, THOUSANDS, who each paid their *twopence* to see the sights presented to them. It would almost be difficult to say whether the sight inside or outside of the shed was the more attractive, for many times, and often during the day, our veteran bee-master, Desborough, was called into the shed to point out the queen in Mr. Symington's Observatory hives, and the short but lucid explanations given by him of the internal economy of the hive were listened to with marked curiosity by a most attentive audience, and he being well known in the neighbourhood, all idea of there being any trickery or deception in the operations or explanations was in a great degree dispelled.

As the expenses attending the bee exhibition were undertaken by the promoter, he was obliged to make the small charge of twopence for admission to the enclosure; but, notwithstanding this tax (for some of the visitors thought it was a tax until they came in, and were satisfied with the exhibition), more than 2000 people passed through the shed on the two days of the show; and when the shades of evening on the second day compelled the closing of the exhibition, many were turned back disappointed that they were not able to see what their friends had described to them as the most wonderful sight they had ever witnessed. Amongst the visitors we noticed the Marquis of Exeter and his family, the Earl of Gainsborough, and Major Wingfield, all of whom took a deep interest in the exhibition. Lord Burghley, the eldest son of the Marquis of Exeter, made three visits, and on the last occasion brought his bride, Lady Burghley. When such intense interest is excited at the novel exhibition of bees at agricultural and horticultural shows, it behoves the authorities of the British Bee Association to follow up the successes of Grantham, Sandy, and Stamford, and arrange, if possible, for local committees in various parts of the kingdom to repeat what our friends, Godfrey and Desborough, have done with so little assistance; and we feel certain that such liberal-minded men as the noble owner of Burghley would most gladly give their patronage, if it were only for the sake of showing the tenantry and cottagers on their estates that bee manipulation is not a myth but a reality, nothing being more certain to remove prejudice, which is the bugbear of agriculturists, than the force of example and the bringing home to the very doors of the cottager the means of judging for himself of the *bona fides* of the operations performed on the bees.

The exhibition this season was carried on under very great difficulties, the bees from the hives not under operation being so poor, were excessively troublesome during the transfer of the combs, and the populations not being more than half of what they ought to be at this time of the year in a favourable season, rendered the driving a much more difficult process; however, the whole of the show passed off most successfully. It was fully intended to have shown the operation of Walton's Honey Extractor, that being in fact quite a necessary appliance in obtaining honey from the bar-frames. Mr. Desborough had received one from Mr. Walton, and its use

was explained from time to time; but when the fact is stated that not two pounds weight of honey was obtained from all the hives transferred, it will be quite evident that little more than dummy show could be made with the machine.

Not the least amusing part of the exhibition were the remarks made by a few of the visitors who fancied they knew the secret of all the performance; one said that we had brought the bees with us because they were tame, and that it was impossible to deal with Stamford bees in the same manner, but when he was told that the straw skeps which he had seen cut up had been taken to the show-ground from a garden close to the Stamford Cemetery, and others from a garden in the centre of Stamford, on the day before the opening of the show, he changed his ground, and boldly said, 'Very well, then, they (the operators) must rub their hands with spirits to keep the bees from stinging.' A second, still more wise, supposed he had discovered the key to the mystery, because two of the operators were smoking 'to keep the bees off;' but when another of the audience pointed out that Mr. Desborough had done exactly the same thing, and that he does not and cannot smoke, he quietly gave up his argument and stood silent. Of course, it was immediately pointed out that there was no trickery or mystery, and that experience and confidence were all that was necessary for the apiarian to possess to enable him to operate upon the bees in the manner shown. For reasons explained in last *Journal*, not an individual outside the enclosure received a single sting.

THE APICULTURAL SHOW AT STRASBURG.

The Orangerie, where the show was held, is at a short distance from the town, and is of itself worth a visit. There are well-laid-out grounds and a beautiful garden, with an avenue of fine orange-trees. The building itself is plain, but, no doubt, suited for its purpose. In this building were exhibited the honey-extractors, and the produce of bees, and some bee furniture, &c. The entrance-room contained the Extractors, which were numerous; some of them large and complicated, others simple and inexpensive. One was marked 25 marks (less than 25*s.*), which seemed to work well. The exhibitors were not there to explain the merits of the different machines, either in this or any other department, but they may have been there on the day of opening the Exhibition. The visitors, also, were not numerous; but, no doubt, some of them were at the conference which was being held in another room. After inspecting these machines we went into a room on the left hand, where there were exhibited the bee produce and some bee furniture, such as head-protectors and queen-bee cages and fumigators. The honey in comb was but small—the largest was in a straw hive—but there was plenty of run honey, which was perfectly clear and conveniently packed in different-sized jars and glasses, and there were some very pretty dishes to hold honey. We thought the wax particularly fine and clear, without any dregs. The finest was said to have come from Paris, and was sold while we were in the room. There were stalls, one of which was of tobacco, ornamented with a large bee made of the leaf; another of splendid church candles, tapers, and wax ornaments; and there were tables spread with cakes and sweetmeats, no doubt sweetened with honey.

We next visited the large tent in the grounds, where were exhibited the hives and bee-houses. There were but few hives with bars to lift up; in by far the greater number the bars were removed at the back, 'lengthwise.' They were made of wood, wood and straw, and a combination—wood, straw, and oil-cloth—which seemed to be a very light and warm material. Some of the bee-houses were extremely ornamental, and some were protected with a covering of zinc, which must be too hot in summer and too cold in winter. There was one giant round straw hive, about eight feet in diameter. In the same tent there was a *restaurant*.

Lastly we visited 'the live stock,' which was exhibited in a different part of the grounds. The bee-hives and houses, and small cases containing only a queen and a few bees, in number about fifty, were prettily situated on a lawn, surrounded with trees. It was indeed a striking scene to see so many little busy creatures darting about in every direction, apparently quite at home and certainly in the best of humours. I did not see any one the least annoyed by them, and I understood not a single person had been stung since the opening of the Exhibition on Tuesday. They were certainly not all Neapolitans, for some were very black, which may have come from the Black Forest. We were particularly struck by a stock of bees which was suspended from the bough of a tree, with no protection or support but a round board, to which the combs were attached. They were said to be Italian bees, belonging to a Swiss gentleman, who kept them in this way during summer and placed them in a hive during winter.

I do not know what the honey harvest is this year, but, from the few hives in most of the large houses, the bees must have suffered from bad seasons in this neighbourhood. The honey from the Black Forest is dark and tastes slightly of turpentine; that which comes from Switzerland is said to be manufactured. The price is about 10*d.* per lb.—O. B. T., *Freiburg, Baden, September 18th*, 1875.

COUNTY ASSOCIATIONS.

As a beginning, we have received the names, as under, of two gentlemen willing to act as Secretaries during the formation of Bee-keepers' Associations in their respective counties. We trust that during the ensuing month others will declare themselves, and that in connexion with the London Central Association a great work will be accomplished:—

Charles Tite, Esq.,
Wyndham Street, Yeovil, Somerset.

W. N. Griffin, Esq.,
Rock House, Alphington, Exeter, Devon.

In order to preserve honey it should be stored in jars, well secured with bladder or other material, and kept in a dry place.

Correspondence.

**** These columns are open to Subscribers, so that their queries, replies, correspondence, and experiences, may be* fully *and* faithfully *recorded; and for the discussion of all theories and systems in Bee-culture, and of the relative merits of all hives and appurtenances, that the truth regarding them may be ascertained. The Editor, therefore, must not be expected to coincide with all the views expressed by the various writers. All Correspondence is addressed to the Editor.*

PROPOSED COUNTY ASSOCIATIONS.

The proposal of 'C. T.' in the September number of 'our *Journal*,' in my opinion, is the very thing wanted to bring the country at large into co-operation with the London Association. I have no doubt, with the help of the *Journal*, it is doing a little good in the small sphere in which it moves; but the *Journal* is the grand main-spring of all good that may have been done in the counties. I believe there are many who will think with me that their interest and practical knowledge would be greatly enhanced if they could be brought more in contact with experienced and practical bee-keepers. The Crystal Palace Show is a grand affair for those who are so lucky as to live within easy travelling distance; but the bee-keepers of the Northern and Midland counties, nineteen out of twenty, will never spare time and money to go so far to take a lesson on profitable bee-keeping.

I would now suggest that Grantham, having taken the lead in the holding of county bee-shows (which I consider as quite a success), do also take the lead in forming the first branch association. I know there are men living in the town well able to raise the banner, and when once raised have no doubt others would soon flock to it; and I would just venture to make one more suggestion, that the following counties be included in the branch, and it be called 'The Lincoln, Rutland, and Nottinghamshire Branch of the Bee-keepers' Association.'

Hoping soon to see a move in this direction I beg leave to subscribe myself—A Mid-Lincolnshire Bee-keeper.

AN ASSOCIATION FOR DORSET.

An effort is being made to get up a County Association of Bee-keepers, as the Central Association is leaving the country districts entirely unworked. There are several extensive apiaries in the county, and the Dorset clergy have long been trying to teach their cottager neighbours that bee-keeping on the humane principle will pay far better than the old system. The exhibits of honey at the district flower shows have been very passable, notwithstanding the badness of the season; but, of course, only the cream of the hives have been displayed.—Novice.

BEES IN THE TYROL.

I have recently returned from a tour in the Tyrol, unfortunately not being a German scholar I could not make any inquiries respecting apiculture, so had to rest contented with what my eyes could tell me. The bee-house, or roofed bench seemed universal, and the crowding of hives worse than in any English cottage garden. The apiaries which I saw were mostly belonging to cottagers. In one or two places the hives appeared to be bar-frame with supers, but these differed much from our hives, being remarkably high (18 in. about) and very shallow from front to back. Straw skeps were by no means common. The more usual form was a wooden box, about 6 in. high, 8 in. wide, and from 2 ft. 6 in. to 3 ft. from front to back—all nailed together with the exception of the front board. The bottom board projected about 3 in. as an alighting board, and the upper one projected also about the same distance, in this a hole was bored and a peg thrust through which kept the front board in its place. These hives were packed as closely as it was possible to put them, not only side by side, but piled up also. The fronts were ornamented with painted devices, birds, beasts, horses, saints, &c., many bearing dates, one 1848, seemed in perfectly good condition. There seemed no means of depriving the bees of their treasure, no space for supers. They must have been '*put down*' (mild term for murder).

Further south in the North of Italy, near Bernio, the hives were of similar construction, but (query because of the heat) the front board was omitted, so that in passing you saw the combs with the bees clustering among them, and in many cases the combs projected beyond the sides of the hive. At Tirano I saw a great quantity of hives like these piled away in a kind of open attic under the roofs of the houses, a very great height for laden bees to ascend to. The peasant does not seem to be in advance of our cottagers in the matter of bee-keeping. The honey which I tasted in many places was very high-flavoured and thick, too much so for my palate. In the valleys it was more like our clover-and-lime honey.—A. C., *Market Drayton.*

HIVE SHAPE.—DISTANCE GAUGES.

Allow me to make a few remarks on the above subject. Your correspondent, 'A Cardiff Bee-master,' says that he has found $1\frac{6}{10}$ inches to be ample room for all purposes, and that the best results will be obtained from hives with frames constructed with that measurement from centre to centre. In 1874 I purchased one of your Frame-bar hives as a pattern, and had two constructed like it in all respects except the cover. I only used one of these for a swarm, as I transferred the combs from a straw hive to the other. I ran a line of wax along the centre of each bar, and that was the only guide my bees had to induce them to build their combs straight. I put them as near upright as I could at a guess, and could see from underneath by drawing out the floor-board that they were building their combs parallel with the sides of the hive. In about three weeks I lifted the hive, and placed a brick under each of the four legs, as I thought the legs would soon rot if they remained sunk in the ground as they then were. In doing this I failed to place the hive in exactly the same position as it previously occupied, and this had the effect of

throwing the remaining three combs out of the straight line in which the others were built. This year I determined that should not occur, and following the directions so plainly laid down in the columns of 'our own *Journal*,' I have succeeded in obtaining straight combs in the whole of my seven hives, constructed on your principle, into which I have introduced swarms.

Now this result I have obtained without using a guide of wax or comb, in fact without any sort of guide whatever. I placed such implicit confidence in your instructions as to hiving, &c., that my first swarm (May 24th) I placed in the hive as above without guides, not even the bars waxed, resolved to try this one and be guided by the result. Accordingly, two days later, having two more swarms come off at once, I immediately proceeded to my first swarm and examined it. Imagine the pleasant surprise I felt, on quietly lifting the quilt, to find three combs commenced in exactly the position in which I should have placed the guides, *i. e.* right in the centre of each bar. I of course took no further trouble with my swarms which followed, nor do I believe any to be necessary beyond hiving them with the hive in the position in which they are to remain. The result of my experiments this year with these hives—in the whole of which 1½ inches are allowed from centre to centre of the frames—is that I have now seven frame-bar hives with straight combs, and that each comb has been built well underneath the frame to which it was attached. I can mention two other instances which help to prove that 1½ inches is the rule even in straw hives with fixed combs. I had occasion the other day to cut down a bell-shaped straw hive which I had purchased for the purpose of fitting it with a flat top. While open, I applied the rule, and found it exactly 1½ inches from the centre of one comb to that of the next throughout the hive, although between some of the sealed combs there seemed hardly room for a bee to creep. I afterwards drove the bees from an old skep for the purpose of excising some of the combs, and here I found the same result practically; for although some of the cells in two of the combs were deeper on one side than on the other, and were not quite of the same measurement (which I could not account for), yet taken bodily, and measuring straight across the combs, I found they averaged the exact distance as above stated.

[Perhaps you will here allow me to mention (although nothing to do with the subject) that I practised the system of open driving with this hive as recommended by you, and that it was the first time I had attempted such a task. I succeeded admirably, and did it in the presence of three ladies and one child, neither of whom wore any protection whatever, and said not a single bee came near them, and that it was quite a feat.]

Two of my frame-bar hives are occupied by swarms which both issued on May 26th, the one English and the other Ligurian; and I placed them near together, intending to treat them similarly, and not to stimulate or encourage one more than the other, and carefully note the difference in every respect between the two, and faithfully record the same for the benefit of myself and others who may possibly wish to profit by my experience. The swarms were nearly as possible of the same number and weight, and issued almost simultaneously; but up to the present time the English bees have had the best of it, as in June the Ligurians had the misfortune to lose their queen, and lost several weeks in consequence; but, notwithstanding that, they are at the present moment stronger than the others in point of numbers, although possessed of a smaller quantity of comb. Strange to say, a week or two ago a similar event happened to the English bees, as I find there are traces of seven queen-cells; so that they are now on even terms again.—C. J. Smith, *Stroud, Gloucestershire.*

ABNORMAL QUEENS—LOSS OF QUEENS—TRANSFERRING EGGS.

I noticed in two different skeps this season, after swarming, three perfect queen-cells in the one and two in the other, and on breaking up and examining them, two of them contained dead larvæ, which had died at six or seven days old. In another was a mature dead princess: the head and thorax appeared of full size, but the abdomen was short and stunted, not much more than an eighth of an inch long; the wings were also imperfectly developed. Another cell of full size, sealed and apparently perfect in every respect, was empty, dry, and quite free even of jelly—no egg had been laid in it. In the last cell was a full-developed princess, dead, with her head in the bottom of the cell. Coiled round her head was a dead grub, of five days old or so, floating in a considerable quantity of royal jelly. Both skeps were quite healthy; both had thrown large prime and second swarms. The one was turned up the evening of the day the first swarm came off, to see what state her royal cells were in, and to calculate time for the second swarm. They were then all sealed, and the cast came on the tenth day. They may have got chilled at this time, which will account for the dead larvæ in the first two cells. On the twenty-second day the skep was turned and transferred to a bar-frame, and the peculiarities of the first three of the queen-cells above referred to noticed, and which were intact at that time. The other skep was not touched or disturbed from the time it first swarmed till the evening of the day the second swarm came. If abnormal princesses in cells are common in skeps—although I have never noticed instances like these before—it shows the risk of transferring queen-cells, also of cutting them all out but one to prevent casts, and may account for cases of failure and disappointment in both of these processes.

When casts, or seconds, are not wanted, in place of cutting out the cells, a better plan is to allow the swarm to come in the natural way and hive till evening; then turn up the skep, release all the princesses, if any, confined in the cells; throw the cast on a sheet in front of the skep, into which they will run fast. The surplus princesses will be found thrown out, dead, next morning.

The old hive is left strong in bees, with a young queen, and if the season is good they will store a good surplus of honey.

Things went on all right for three weeks, with the bar-frame above referred to. They had built into two empty frames, stored some honey, and the queen had nearly filled all the remainder of the frames with eggs—the hive contained brood in all stages. The appearance of the bees running about the entrance, one afternoon at this time, showed something was wrong, and on examination, it was evident the queen had been out and got lost, for not a trace of her could be found anywhere.

The bees had begun to build royal cells on a space in one of the combs where the stick had been through it in the old skep. There were three cells, nearly the size of an acorn-cup, and they diligently continued their labour of constructing after the frame had been lifted out. On brushing them off, it was found the cells contained nothing—neither egg, grub, nor royal jelly—their place and position were noted, and three days afterwards the hive was opened to insert a queen. This frame taken out to cut away the cells, they were then sealed, and each contained a living grub, and on several frames in the hive other royal cells were found, some sealed and others not, but nearly all with larvæ in them in different stages.

I have said the three half-made cells were empty when first examined, and were built down in the natural form, and on again looking, three days afterwards, they were sealed and each contained a living grub embedded in royal jelly. If the workers did not transfer eggs to those cells, how did the living grubs come to be there on the third day? If 'Lanarkshire Bee-keeper' can give a satisfactory reply and explanation I shall be satisfied. None of the arguments he uses in the August Number will explain this case to my mind. The examination was done in broad daylight, under a glowing July sun, with the frame of comb held up in position to have the full benefit of the light.

Eggs are not so minute but one can easily see them. None of the worker-cells all round had any eggs in them, but there were some sealed next the royal cells. My friend and I cannot both be mistaken, and although we did not see the workers remove or transfer eggs to these royal cells, the circumstantial evidence goes to find them guilty.—J. S., *Arbroath.*

EXPERIENCE WITH LIGURIANS.

After some very unfavourable weather, our bees in these parts are doing well. Of course they are now all away six miles off at the moors.

My Ligurians have done well. They have quite established their reputation, and bee-keepers hereabouts are all anxious now to get them, indeed many have got one or two stocks.

My old hive, as I told you before, threw out three fine swarms, the second and third on consecutive days. The first of these threw out two very fine swarms. The first grandchild I kept, and it has now two Stewarton boxes full. The second I put back, though a very large swarm, securing three live Ligurian queens, however, out of it. Two more queens lay dead the next morning under the parent hive, but the swarm came out again later, and was put back after another queen had been secured.

The ling is in full blossom, and during the last week of glorious weather the hives have increased very fast. The previous rains had just begun to spoil the ling flower, but a fresh crop has since appeared. I have this morning seen a glass and a straw cap brought down yesterday full of the most beautiful moor honey.

I want to ask you if you can direct me to any tradesman who will purchase our moor honey at a fair and proper price. I should say not less than two shillings a pound. Arrangements would of course have to be made in regard to the boxes, straw caps, or glasses, which would have to be paid for, or else returned.—Yorkshire Moors, *Aug.* 21.

LIGURIAN BEES.

I obtained a bar-hive three years ago with a Ligurian stock in it, and I have proved the Ligurian bee to be the best worker—the first out in the morning and the last in in the evening—and the heaviest in my whole apiary of thirteen stocks. I intend using all bar-hives now (which I make myself). The cottagers cannot be persuaded to adopt the humane plan, so they must come and see for themselves. I hope the time will come when our valuable *Journal* will be a weekly paper. The information it contains is invaluable to us. Many hives of bees have been found dead in this part, —*starved.* Almost everybody has lost some, but I have not lost one yet, having well fed them since I read the *Journal.*—A. Whithorne, *King Somborne, Hants.*

BEE-FEEDING.

Among the many ways now already practised I beg to give you my way. Get a good-sized bottle, to hold not less than a pound, cut a small piece of tin or zinc, not quite the size of the bottle neck, and pierce two holes, then place on the bottle neck and seal over with sealing-wax; have a piece of wood with a hole in it sufficient to take the bottle neck, and invert your bottle and place on the hive. Should two holes be too many, drop a piece of wax on one of them. This I find to be a very clean and sure way to feed our now almost famishing colonies.—Lake Lancashire Bee-Keeper.

BEES AND SHOWS, SOMERSET.

'Oh, dear! what can the matter be?' has been the exclamation of scores of beekeepers this month. Hundreds of stocks have been removed and no honey taken; so bees have been burnt by tens of thousands, and the result is—well! a few pounds of wax at the best. Some of my neighbours will have scarcely secured enough honey to rub over chapped hands, or to make a gargle for sore throats during the winter. I have driven several stocks, giving a mere trifle for the bees, which are now comfortably housed and feeding away in my garden. Some of my acquaintances have been disgusted this season, and have

given up bee-keeping altogether. Others have been prevailed upon to feed, being assured that they will be amply repaid next spring by strong and early swarms, as well as by a fine in-gathering—wind and weather permitting. Many will be ready to believe the good old legend that, 'In order to keep bees successfully, you must be loving, be prosperous, and be good-tempered.' Well, one need love his bees or any other pets when keeping them under difficulties; then, prosperity enables folks to spend liberally in time of necessity; and good temper helps us out of lots of trouble. When will the Association come to the help of country cousins? The A B C of apiculture has yet to be taught in many places of this country. Would you believe it, gentle reader, I called on a very decent, business-like man a few days ago who had about a dozen stocks (and who told me his father and grandfather had kept an apiary before him), but who was innocent enough to believe, like the writer of the Arabic dictionary quoted by Cotton, that all his bees laid eggs? We must do something to stir up a real interest in our pets. I am glad to say that paragraphs have appeared in several local papers this month cautioning cottagers to feed their bees ere winter sets in. Some of the country papers have also given extracts from the *Journal* as to superstitions, &c. If your readers would only send interesting scraps about bees to local editors, it would help to advance the cause we all profess to have at heart. Would that we would get up a Bee Show after the manner of our Grantham friends! If your Somerset subscribers who think with me in this matter will favour me with their names and addresses (through you) we will try. I believe we could do something in Bath, Taunton, and Weston-super-Mare, next summer.—TAUNTONIAN.

THE STEWARTON SYSTEM.

The 'Renfrewshire Bee-keeper' in the opening numbers of the *Bee Journal* gave a most interesting account of the Stewarton hive and system, but there are a few points upon which I am anxious for further information:—1. Are covers necessary except at top; and if so are they made in sections to correspond with the body boxes, or how are they adapted for storifying? Would it not be possible to have the hive walls double or made thicker, a fillet of wood nailed on at the bottom of each section to project downwards and over the joint so as to keep out wet, and then to cover all with a milk-pan?

2. How is a stock treated in spring? Is the super put on first, and when partly filled the third body box added below all, or is this last added before the super?

3. How do the bees store their honey in the three sections? Do they treat the three as forming one hive, and store honey in the upper one as they would in a comb 18 inches deep, or is the honey stored at the top of each section as if there were three separate hives? If the latter, would it not be possible to winter three separate colonies, one in each section, placed one above the other for warmth, ventilation going on through all three, and by uniting in spring to secure one strong stock, and two surplus queens?

A few hints from the 'Renfrewshire Bee-keeper' would greatly oblige—H. JENNER FUST, Jun., *Hull, Falfield, Gloucester, Sept.* 11, 1875.

TRANSFERRING EGGS FROM ONE COMB TO ANOTHER.

In reference to your note on my communication of last month, I can state that one at least of the royal cells, raised on newly-introduced drone-comb in a queenless hive, contained a queen. As I did not examine the hive till a day too late, I cannot say what the other cells had contained, but they appeared just as superfluous royal cells always do a day after one queen has been hatched out.

It happened that just before the Number of the *Journal* containing Herr Gravenhorst's article on dividing hives arrived, I had divided a hive with the view of saving a queen; and as my experience would seem to show that the system is not free from objections, I offer it to you, premising that the division was more effectual than I understand Herr Gravenhorst to require, *two* small hives being substituted for one large one, and the combs divided between them so as to give each a royal cell; further, each of these small hives had its own floor-board nailed on it; they were placed side by side on the floor-board of the old hive, one of the contiguous sides having been left some inches longer than the hive itself, so as to project in front, and, by dividing the alighting-board, prevent the bees meeting on it; lastly, the front of one hive was painted red, that of the other blue. A queen was duly hatched in each hive, and for some days all seemed to be going on well, but, about the fourth day, on examining one hive, I missed the queen, and, on opening the other hive, I found her nearly dead, incased by a mass of bees, their own queen being alive and well. Having a spare royal cell, I gave it to the hive that had thus lost its queen, and the next day it was again in possession of one; but on the third day I found the queen of the other hive had made her way in (she happened to be quite a different colour from the younger one), and the younger one was dead on the ground in front of the hive. Thus two queens out of three perished under conditions, which in so far as they varied from those in Herr Gravenhorst's case, varied in the direction of rendering such a result improbable.—B. M. B., *Mt. Lucas, Philipstown.*

PROPOSED BEE COMPANY.

As a pendant to Mr. O. Poole's letter, bearing the above heading in our September number, we extract the following from the *National Food and Fuel Reformer*:—

HERB GARDENS AND NO BEES!

The market gardens around the metropolis have long been famous, not only for producing the best vegetables possible, but for producing them in abundance. To do this it is necessary to have a great amount of experience, and the necessity of such experience has resulted in certain vegetables and herbs being grown almost exclusively in certain districts. At one time an area lying between Kensington and Brompton was largely devoted to the cultivation of lettuces and cauliflowers, more especially

early ones, for which there has always been a great demand, and which always command remunerative prices. The rapid growth of the metropolis, which encroaches year by year most perceptibly upon the green fields and open spaces of the suburbs, or the cheaper and more rapid transit by rail, has done away with the market gardens so near the centre of the town; the earliest cabbages, cauliflowers, lettuces, &c., are now sent from Cornwall and the Scilly Isles, and it is only the more distant market gardens which retain their original characters. Mitcham is one of these: its open fields, lying fully exposed to the summer sun, are still covered each year with fragrant herbs and flowers, although the greater part of the acreage is devoted to medicinal or aromatic plants; yet there are greater breadths of savoury pot-herbs, and sweet herbs for culinary use. The cultivation of these latter is here, however, not so extended as it is in the market gardens of Fulham, where lemon and common thyme, sweet basil, marjoram, and many other aromatic ingredients for stuffing or soup are largely grown, especially for sale at Covent Garden Market. On hearing of acres of lavender, peppermint, &c., visions of rural beauty, peace and plenty, naturally arise; and if we do not expect to see a perfect Arcadia in the village with such sweet surroundings, at least we expect homely comfort. Mitcham, with its acres of beautiful common, extending as far as the eye could reach, with its hundreds of acres of aromatic plants, presented no unusual picture of rural prosperity; in fact, rather the contrary. It scarcely presented—that is to say, as far as the cottagers and their entourages were concerned—the pleasant appearance of an ordinary English hamlet. There was an air of untidiness, a want of that knowledge which makes the best of everything, apparent even to a stranger. Most of the cottages had gardens, not very extensive ones, perhaps, but large enough to grow flowers, herbs, and hold a stand of bee-hives; yet the plot of ground was in general not at all, or very indifferently, cultivated, and a prolonged tour of inspection around the place did not show us a single bee-hive! Hundreds upon hundreds of acres of aromatic plants only harvested in full blossom, and not a single hive! Acres upon acres of common land, where the air was scented with the perfume of the wild thyme, lying in beautiful purple patches at the feet, and not a single bee! During all our walk of many hours about the place we never heard the happy hum of this busy worker for man's benefit. Are the villagers of Mitcham asleep that they do not see what a mine of wealth lies before their doors? Are they so indifferent to worldly prosperity that they do not care to increase their means, and thus increase the comfort and happiness of their homes? or are they so little versed in rural economy as never to have heard of the profitable keeping of bees? Neither the exteriors, nor the glimpses we caught of the interiors, of these cottage homes of England bespoke too much comfort; and yet fields full of blossom, each blossom bearing in its nectary the drop which might become honey, were wasting their sweetness, if not on desert, yet on unprofitable air, while the workers amid all that sweetness toil for the miserable pay of the rural labourer, and never see that they might obtain comfort, if not plenty, by availing themselves of those resources which nature has spread so plentifully aromnd, and of which any one might avail themselves by the exercise of the smallest amount of labour and care.

Agricultural labourers cannot keep fowls nor rabbits; such live stock is forbidden by harsh masters on pain of dismissal, and they do not keep bees. The most inveterate money-grubber who ever breathed would surely find no excuse for forbidding a man to erect a stand of hives at his cottage door; he could not lay an embargo upon the nectar which fills each blossom of Bean or Clover. There could be no inducement to petty larceny to find food for bees. The industrious insects find their own sustenance, they rifle the wild flower of its sweets, and what they take from the farmers' fields is never known and never missed. Should prolonged wet or cold weather compel man to give them a little food during winter, he does not return them one-twentieth part of that which he has taken during summer. Yet there is scarcely a hamlet in England where the number of the hives could not be counted upon the fingers of one hand. We live in the midst of fertile fields. Our Gorse and Heath-covered commons might prove a mine of wealth for the industrious poor living in their vicinity; yet the Gorse flowers more or less from the commencement to the end of the year, the Heather blossoms unprofitably on the plain, they distil their sweetness to the winds alone, save for the modicum of nectar gathered by the few wild bees who seek from them their store of food.

We pay thousands of pounds annually for honey and wax garnered by the careful French peasants, while such money paid for the fruits of home industry would elevate the social status of the rustic toiler, and add to the prosperity of the whole conntry. All money spent upon imported food is a confession of weakness, a nation which does not feed itself dare not resent an affront, a sudden stoppage of foreign supplies would leave the bulk of the people in a state of starvation.

With thousands of acres of wild heath and woodland, only utilised to provide game for the sportsman's gun, and which do not help one iota towards cheapening food for the people, we go on from year to year; we import our beef and mutton, we import our poultry and eggs, and we import—our honey!

Foreign Intelligence.

FRANCE.

The French Society for the Protection of Animals has granted a prize medal to M. Hamet, Professor of Apiculture and Editor of the *Apicolteur*, for his teaching the protection, and denouncing the destruction, of bees. The Society of Acclimatization has decided upon giving a prize of 500 frs. for the introduction and acclimatization of the Egyptian bee. The *Apicolteur* strongly regrets the fact, and thinks that the prize might be applied to better purposes in connexion with apiculture than the introduction of the species in question.

It is reported that bee-keeping is on the decline in the Department of Perpignan, and others where the cultivation of the vine is every day gaining ground.

The *Apicolteur* of this month comments at large upon the Cheshire Hive.

ECHOES FROM THE HIVES.

New Wimbledon, Surrey, Sept. 25.—'I thank you and the Committee for the practical instructions given at the Crystal Palace on the Honey Bee. I thought I knew something about bees, but I find I am quite in the background. I was surprised to see how easily you managed them, and learned much that I did not know before. I at one time kept several stock hives, but neglected them; so that I have lost all but one old straw hive, eight or nine years old. Now, having received such good, practical lessons at the Crystal Palace, I must try and turn them to good account.'—J. S.

Kilsby.—'I am sorry to say, bees in this neighbourhood have done badly this season, and I fear the coming winter will be one of starvation to them unless they are well fed now. This summer they have attacked the apricots,* which unusual circumstance I attribute to a lack of food in their hives.'

* This is a slight mistake, bees do not attack fruit, having no ability to pierce the skins of any fruits grown out-of-doors. Where the fruits burst, or are first *attacked* by birds or insects (wasps for instance), they, in such seasons as the present, endeavour to keep life in their hives by sucking up the sweets thereby exposed.—Ed.

Maidstone, Sept. 13th.—'Several of my bee-keeping friends are in the same plight as myself with regard to honey. One I heard of had 'taken' three hives (that is, killed the bees), and not one ounce of honey in the three. Another, whom I offered to take away the bees, leaving him the honey and comb, would not hear of such a thing (and rather looked upon me as a sharper), so I offered him the price of 10 lbs. of honey. A few days since, when he came into Maidstone, he told me he had 'taken' a hive of bees, there was no honey in it, not a bit. I find a very great difficulty with what I call the "Old School." I get an answer something like this—"I know my way's the best, don't you talk to me about your new-fangled notions," &c.'—J. T.

Forest Hill.—'The station-master at Brockley Railway Station close by here has been doing of late great improvements with a view to make his little station more and more attractive with flowers, &c. He has just given the last *coup de grace* by placing a bee-house with two hives in it, giving the "scenery" a pleasing appearance. I think he ought to have a kind word from the Bee Association for bringing our pets so very prominently before the public.'—J. C.

Queries and Replies.

Query, No. 136.—On June 17 I hived a cast, *i.e.* second swarm, and while the bees were playing I noticed three or four bees flying together just outside the swarm, they passed backwards and forwards several times, and at last rested on a spray of an apple-tree; the swarm eventually settled on a damson near. I would ask you to be good enough to say if you think these bees were the queen and some drones.

Is it an invariable occurrence that the old queen goes out with the first swarm? Huish asserts the opposite.

If the old queen goes out always I must have three queens of 1872: are not these too old to be relied on?

The following plan of preparing and fixing wax-sheets for guides appeared to me some months ago likely to answer, and your experience, related in page 62, confirms the opinion. I propose to pass a *tape* of such width as may be found advisable, slowly through the melted wax, it will of course become coated on both sides with wax, and may then be cut into such lengths as are required, and fixed in the frames so firmly as to bear any weight to which a comb is likely to attain.—A Country Parson.

Reply to Query No. 136.—1. It is quite possible that the queen may have been courted by some drones on the occasion referred to, but the matrimonial alliance is usually formed some days after the swarm has been hived. This has been many times proved.

2. It sometimes happens that the old queen dies or is removed just before swarming-time, or in attempting to swarm falls to the ground and is lost; and in these cases young queens must be reared before a swarm can depart; and such swarms, although *first swarms*, are headed by such young queens If your query means, 'Does the old queen stand aside and allow the swarm to emigrate with a young princess?' we reply with an emphatic negative, 'Huish' to the contrary notwithstanding. 'Shuckard,' in his *British Bees* (1866), goes even further, and makes the old queen prisoner in the hive, whilst the young one goes forth on her matrimonial journey, 'attended by a bevy of drones.' She is then supposed to return 'matured into an incipient mother,' but through the hostility of her royal parent is driven forth with a swarm. This kind of thing, according to 'Shuckard,' goes on until the population of the hive is 'sufficiently reduced,' when 'the queen is prompted to execute her murderous onslaught on the hapless young queens, which are either still embryonic, or, if developed, have not been permitted to leave their cells.' This is a pretty theory, but is not in accordance with the truth.

3. Queens of 1872 cannot be relied on to keep up the strength of colonies in 1876, and therefore it would be better that they should be superseded during the present autumn.

4. Your method of fixing guides will fail because of the inability of the bees to mould the tape to the shape of their cells, the bases of which are each formed of three little lozenge-shaped plates. The consequence will be that every bit of the fibre of the tape will be torn out by the bees, and the whole thing become a nullity.—Ed.

NOTICES TO CORRESPONDENTS & INQUIRERS.

S. Thomas, *Cardiff.*—A letter sent to your full postal address as given, containing Schedule of Prizes, has been returned to us through the Dead-letter Office, with the remark 'not known.'

S. T., *Dorset.*—Uniting weak stocks was treated of in the September Number of *Journal*. There is no difference in the manner of uniting bees in boxes with fixed combs and those in skeps; in either case they may be transferred to bar-frame hives, or the bees must be put together into one of the existing hives.

T. Hill, junr.—The Secretary will supply the Catalogue of the Bee Show, price 6*d.* Queens are already quoted in the *Journal*.

Cowbridge.—If the honey is not considered of any value, it may be allowed to remain in the combs to be transferred to the frame-hive. Our reason for suggesting that the honey be extracted simply means that it being usually thought worth several times the value of sugar syrup, removing it and giving the latter to the bees would be a profitable exchange, beside lessening the weight of the combs; and the return of the syrup in lieu would stimulate the bees to the breeding of the all-necessary young bees for winter. Brood remaining alive for a week after excision *is* rather remarkable, but inasmuch as that sealed requires only moist heat, we see no reason why it should not; it was the unsealed brood which we warned you would be likely to rot and which the bees cannot then remove. Had you put the combs of brood above the hive in small super, as suggested in August number, and wrapped it to keep it warm, the bees would not have deserted it; as it was, perhaps they had no food, and left it because they could not support it. Unsealed brood has very little life in it, consequently can retain but little heat, therefore it is not probable that after a few hours' exposure it will move when extracted from the cells by means of a pin.

Brolch y Cyban.—Vol. I. of *Journal* can only be obtained through means of advertisement; Vol. II. is nearly out of print, but may be had at 7*s.* 6*d.* at this office. See also Sale Column.

Correction.—By an error Mr. Rusbridge's super was described (p. 96) as weighing 63¼ lbs., it should have been 6¾ lbs.

*** A Pink Wrapper denotes that Subscriptions are in arrears.

Covers for Binding the British Bee Journal *may be had, price* 1*s., at the Office, Hanwell, W.*

OUR WANT AND SALE COLUMN.

WANTS may be advertised at 2*d.* per line of eight words, for one insertion, renewable in succeeding months, for three months, without alteration, for half price. Replies must contain stamped directed envelope, or they will not be forwarded.

All monies must be deposited with the Editor, who will communicate with the vendor, when, if a sale be effected, one penny in the shilling will be charged on all amounts not exceeding one pound, and one halfpenny additional will be charged on every shilling beyond that amount, and the balauce forwarded to the vendor.

Should no sale take place, the money deposited will be returned to the depositor, less a uniform charge of fourpence to cover postage.

The carriage of all articles sent, except such charges as are incurred in first placing them on a railway, must be paid for by the depositor, and if not equal to the description given, the advertiser must pay the cost of their return.

The postage of small articles, such as books, must be prepaid by the sender. The name of the town or country in which advertisers reside, and the name of their railway, should be mentioned as a guide to probable cost of carriage.

No advertisement must contain more than sixteen words. P. O. Orders to be made payable to C. N. ABBOTT, office of *British Bee Journal*, Hanwell, W., London.

No.		s.	d.
150	Wanted.—Clean new straight worker comb—any quantity. J. F. Newland, Wandsworth Common.		
192	Wanted,—A large quantity of straight worker comb, Birmingham. State price, &c. to Editor.		
198	Gnide-plates (4 × 1½ inches), fitted, with wooden screw-press complete, for making impressed wax sheets	10	0
199	Microscopy.—Willing to exchange first-class microscopic slides, &c., for good swarms. John H. Martin, Mount Pleasant, Tunbridge Road, Maidstone.		
201	A Cottage Woodbnry Hive	15	0
202	An Eleven bar-frame Woodbury hive	7	6
203	Wanted.—Vol. I. of *Bee Journal*. Full price given.		
205	Wanted.—Index for Vol. I. *British Bee Journal*. State price.		
208	Unicomb, holds one frame, glass sides, for show	7	6
209	The Improved Cottage Woodbury Hive, made according to directions in *Journal*, and approved by Editor, unpainted. Lancashire	20	0
210	'A Manual of Bee-keeping,' by John Hunter. Quite new. Postage 3*d.*	1	9
211	'The Management of Bees,' by Samuel Bagster, 244 pages, and 40 Illustrations, also 'Practical Bee-keeping,' the two books, post free	5	6
212	'Full Directions for the Management of Bees to the greatest Advantage,' by the able Author, John Keys, also 'Bees: their Habits, and Treatment.' The two, post free	6	6
213	Three Float-feeders, complete, each	1	0
215	Wanted—Vol 1. of *Bee Journal*; or Nos. 1, 5, 6, 7, 9, 11, 12—Yeovil		
216	Wanted—*British Bee Journal* for Sept 1873, Oct. 1873, March, 1874, and April, 1874.		
218	Several pure Ligurian and hybrid stocks for sale, in bar-frame hives, price according to strength, &c.—Shropshire.		
221	Wanted,—Stock of Pure Ligurians in exchange for Two Stocks Black Bees. Lincolnshire.		

WANT AND SALE COLUMN—CONTINUED.

No.		s.	d.
222	I will buy or sell 'Journal of Horticulture' one week old, state price.		
223	Three Stocks of Bees, strong, and fair amount of Honey. Bar frames. Each	20	0
224	Two Stocks of Bees in straw skeps. One Neighbour's. Good weight. Great Western Rail. Each	12	6
225	Three Stocks of Hybrids in Bar-frame Hives, with moveable floor-boards, and on legs. Three windows in each hive. Will stand the winter. Leicestershire. Each	30	0
226	Four Stocks of Hybrid Bees, in Improved Cottage Woodbury Hives. Heavy enough to stand the winter. Leicestershire. Each ...	40	0
227	Stock of Pure Ligurians, queen 1875, in Woodbury hive, with stand, super, and cover, complete. Good condition. Gloucestershire ...	84	0
228	Two Carr-Stewarton Body Boxes, been used, straw. Each	7	6
229	Two ditto, supers, new. Each	7	0
230	One Huber Leaf Hive, good as new	21	0
231	One pair Neighbour's Sectional Supers, new ...	5	0
232	Hunter's 'Bee Manual.' Post free	1	9
233	One Stewarton Set, new	15	0
234	Two Neighbour's Supers in sections. Quite new	5	0
235	Stock Pure Ligurian Bees in straw skep, will travel	42	0
236	Home-made Hive, Quinby frames, two division boards, collateral principle, super cover and floor-board (cheap)	15	6
237	Walton's Extractor, in frame, &c. takes frames 13 by 18. Photo forwarded	55	0
238	For Sale—Vol. I. of *The British Bee Journal*, 'worth its weight in gold'	15	0
239	One Stock of English Bees in a Woodbury Hive, combs all straight, just the thing for Ligurianising	42	0

EXPERT ASSISTANCE.—JAMES ABBOTT, and FRANK, the Editor's Assistants, offer their services in any kiud of Autumn Bee Work.

Please address, J. A. ABBOTT, Hanwell, W.

Just out.

The 'British Bee-keeper's' Microscope.

A useful and popular Instrument, well adapted for all Microscopic purposes.

It consists of a firm Stand, with Brass Uprights, coarse and fine Adjustments to the Body; ¼-inch Achromatic Object Glass, dividing to ½ and 1-inch; Stand Condenser for opaque objects; Diaphragm; Life-box; Stage and Dissecting Forceps. Complete, in Mahogany Cabinet, £3 10*s.*

Brass Stand Microscope, of similar construction to the above, two Eye-pieces of different powers; ¼-inch Achromatic Object Glass, dividing to ½ and 1-inch; also a 1-inch wide Angle Object Glass, for large objects; Stand Condenser; Diaphragm; Stage and Dissecting Forceps. Complete, in Mahogany Cabinet, £4 4*s.*

Binocular Bodies, with Rack Adjustments, adapted to the above, extra.

Polariscope, and other apparatus, can also be fitted.

J. W. DEACON, Optician, High Street, Sydenham.

THE

British Bee Journal,

AND BEE-KEEPER'S ADVISER.

[No. 31. Vol. III.] NOVEMBER, 1875. [Published Monthly.]

Editorial, Notices, &c.

NOVEMBER.

The time has now arrived when hives should be thoroughly prepared for the winter, which is so close upon us, a foretaste of whose icy hand has already made itself felt in our gardens, destroying the tender crops and rendering itself visible in blackened foliage and injured fruits, while the falling leaves are whispering that 'the harvest is past and the summer is ended.' November is usually a cheerless month with bee-keepers, but in this year of grace it is peculiarly so, its dulness being almost entirely unrelieved; for whether we look back to the past summer time, which has left us with only a heap of honeyless supers, or forward to the coming season of climatic severity, scarcely a ray of pleasure lightens the aspect of affairs, and we are compelled to acknowledge the bee-keeping season of 1875 a calamitous failure. We say calamitous, because the previous year witnessed the formation of the British Bee-keepers' Association, and the establishment of an annual show of bees, their furniture and produce; and consequent upon the eminent success of these institutions in every respect, there came a corresponding revival of bee-keeping as a pursuit worthy the attention and encouragement of all classes whether adopted for the purposes of scientific investigation, simple amusement, or as a means of eking narrow resources, and bettering the condition of those with limited incomes. To the last named, bee-keeping has been held up as a sure means of profit; wonderful results from individual hives were paraded before the eyes of the multitude, and the praises of the bee itself, the pattern of truth and virtue, were loudly sounded by the united press of the nation, until the public were led to believe that income from it would be in exact accord with the number of stocks in possession; and on these premises many hundreds of persons have been induced to embark in the pursuit, to find at the close of the season that they have invested in a bubble scheme, promise-crammed indeed, but which has produced nothing, and has caused increased care, vexation, and expense. Such a season, coming as it has, at the commencement of the revival of bee-keeping as an industry, is a visitation which will probably hinder its progress as a science, and prevent, at least for some time, its pursuit by those to whom it has been so strongly recommended. To the scientist, who, without caring for money profit, makes his bees the object of research and investigation, the current bee-keeping year (April 1875 to April 1876) has afforded, and will afford, an immense and valuable experience, as, watching them develope their power of increase as the spring days lengthened, their untiring industry, amongst the fruit-blossoms, and the fulfilment of their inborn desire for emigration: and then, alas! in too many instances, their sudden collapse under the blighting influences of our climate, which neither bees nor men could foresee or control, and which but too few amongst those who profess to love their bees would take the trouble to mitigate.

Here, then, was the beginning of disaster; swarms were 'nipped in the bud,' that is to say, they were cut off from all out-door supplies by stress of weather, and prevented expanding; stocks that had swarmed lost their young queens, or they remained drone-breeders only, the same cause preventing their fertilisation, or conducing to their destruction. No amount of care on the part of the bee-keeper could alter the state of things out-of-doors, but in all the above cases help might have been given which would have ensured safety within, and enabled the bees to fortify themselves for another year. But now we may say, with regret, that there are thousands of stocks in Britain that will most certainly perish because they have been neglected until it is too late to prepare them for the coming time of trial. This state of things has been many times foreshadowed in the pages of the *British Bee Journal* and remedies suggested, which, if adopted at the right time, would have prevented much mischief, and they are fortunate who have adopted them. The effect of the bad season, and the wholesale mortality which is going on amongst bees will make itself felt for some years to come; already the honey

market is so seriously affected that wholesale druggists cannot 'quote' for it, from the impossibility of obtaining the requisite supply; and next year the supply will be equally limited because there will be so few bees left to collect it even though the crops be ever so abundant. This is no fancy picture; we hear of whole apiaries, consisting of thirty stocks and upwards where not more than from two to six 'can possibly' live, others of smaller proportions where none 'are worth keeping;' some in which many are already dead, and not a few in which the rules of arithmetic have been inverted, and 'three times one' has produced a poor unit only, thus reducing apiaries of twenty-one stocks to seven with but a poor chance of successful wintering through the absence of the all-necessary young bees, of which we have written so often. Those who have taken care of their bees, and by feeding at the right time and in the proper manner, have prepared them for the winter will have the satisfaction of knowing that their stocks will be doubly valuable next year, while those who have ignored good management and trusted to the let-alone principle will have learned a salutary though costly lesson.

Wintering.—Packing for winter is now the order of the day, and the bee-keeper cannot be too careful to give his stocks the best possible protection against outside moisture. A good roof is of the first importance, yet how often do we see hives (skeps) with no protection but a few rhubarb-leaves and a slice of turf or peat, which during such weather as we have been 'enjoying' during the past month, must of necessity become saturated with rain and pressing on the crown of the hives, produce rottenness and a crushing down of the combs, and causing coldness and unhealthy mouldiness within.

The best roof cover for a skep is a milk-pan inverted, which may be of earthenware or iron; or the earthenware cover of a bread pan, but under no circumstances should such roof lie close upon the hive, or, being a good conductor of heat, the vapours from the hive will condense on its underside, and running down into the straw cause the moisture and coldness so much deprecated. We therefore recommend that between the hive and its metal or earthenware cover something of the nature of the bottom of a wicker basket should be interposed which will permit the escape of the vapours of the hive, and prevent their condensation. Straw skeps, and single-sided wooden hives require protection from cold, as well as from wet, and it is almost needless to suggest the means by which this may be achieved as the majority of persons will adopt those which are readiest to hand. Perhaps the neatest protection for a skep is formed by slipping an American cheese-box minus top and bottom, over the hive and filling the intervening space with hay, paper, or shavings; sawdust will answer well, provided it be not necessary to lift the hive during winter, in which condition the sawdust falls about and is 'uncomfortable.' In all cases it is well to see that the floor-boards are not larger than the hives and their protection, as drifting rain or snow may cause the bottom rim of the hive to become wet, and straw (as well as wood) being highly capillary, much mischief may be done. Single-sided wooden hives should be made double, to effect which in the best way tack strips of wood, half an inch square round the top and bottom, and an inch wide and ½ an inch thick at each corner, so that in the latter case half the width shall project and make them perfect, then nail (or screw for quietness' sake) thin boards all round (having due regard for the entrance), and the work is complete. In lieu of boards, paper may be used, several thicknesses of which may be pasted on, the outermost being brown, and painted and the bee-keeper will be agreeably surprised at its usefulness and durability. Double-walled hives require no outside wrapping, having dead air space all around them they have the best possible protection; and the only improvement we can suggest is, what in many we have carried out, that the outer front wall shall consist of glass, so that in winter the rays of the sun may during its fitful visitations, shine directly on to the front inner wall of the hive, and impart its warmth at once. Glass is as excellent an outside protection from wind and cold as wood, with the advantage of permeability to the sun's heat rays. This idea, like our principle of slow-feeding, and the bottomless frames for hives, was originated, and first published in the *English Mechanic* and *World of Science* some years since, so it is not actually new; and those who have adopted it can bear witness to its efficacy.

The principal features to observe in bar-frame hives, to ensure the comfort of the bees, are that they shall have sufficient empty worker cells near the centre of the hive to cluster in, shall have very few unsealed honey cells, a plentiful supply of sealed food, and a ventilating cover of carpet or similar material, in lieu of a wooden crown-board; and, that the vapours from the bees may not condense in the super cover or roof, a free current of air should be allowed to play through or under it. Drone combs should be completely excluded from the winter's nest as the cells are inconvenient for the bees, although in early spring their presence near by will often induce the early breeding of drones. We have found that a drone-comb in the centre of a hive, has compelled the bees to cluster in

the combs on one side of it, and prevented the extension of the brood-nest, for although the queen would deposit eggs in its cells, the bees, not being sufficiently strong in numbers, refused to hatch them, and the breeding space was thus contracted as with a division-board. This *observation* will afford a clue to the early production of drones in some hives, which to the astonishment of their owners only swarm late, if they swarm at all, and are generally profitless.

In packing for winter great pains should be taken to exclude all vermin from the hive—the worms of the wax-moth should be carefully sought in all crannies and crevices, particularly (in skeps) between straw and floor, where they bury themselves and spin their cocoons. Not only may the worms of the wax-moth be found in the crevices of hives, but, like silkworms when about to spin, they will creep into any convenient place and fulfil their destiny. We have found them packed between boards, when, finding too little room for their spinning operations, they have gnawed for themselves cradles (or graves) in which to take their rest, and await the change they have prepared for.

Spiders and their eggs should be destroyed, these will be found in the angles of roofs and under floor-boards, in the corners of bee-houses, and indeed in any warm, dry places.

Wasps' nests should now be diligently sought for, and the nests destroyed. The same cause which has hindered the prosperity of bees, has also prevented the usual increase of wasps, and a small effort to discover and destroy their nests *now* would almost exterminate them.

Ants are a nuisance, but they may easily be got rid of, a crowbar driven deep through their nests, making a trap into which they fall by hundreds, 'never to rise again.'

Earwigs are not nice things, but do little harm to bees; the best cure for them is to lay a piece of carpet on the crown of the hive, infested with them, and occasionally placing the hand upon it and (as it were) scrubbing the hive with it, thus crushing them between the carpet and the hive.

Tomtits are terrible pests, and commit sad havoc amongst bees. Many persons do not believe this, but we have caught numbers of them in traps baited with dead bees only. Live bees they are particularly fond of, and will hang on to the alighting board pecking until a bee comes out, when seizing it, the bird will fly to its perching place, and having removed the sting, will swallow the bee and return to the hive for more.

Apiaries near woods are in some danger from the woodpecker, and near farms the sparrow is often accused, but in our experience the tomtit is the worst of the bees' feathered enemies.

WINTER FOOD.

Where it is necessary to feed bees at this late period, the best kind of food is barley-sugar made according to the receipt given on page 129 of Vol. II. of this *Journal*. All feeding should have been done ere this, but as we know that in many cases it is not, we beg to remind bee-keepers that the importation of larger quantities of watery syrup into a hive during cold weather is likely to cause dysentery, and should be avoided. Barley-sugar, on the contrary, has all the water boiled out of it, and when administered, can only be taken by the bees after the moisture of the atmosphere of the hive has rendered it 'sticky,' and when taken it is of the consistency of honey, and, requiring no evaporation, can be sealed over without loss of time. It may be administered in a bottle, under a flower-pot, under the quilt, or thrust in between the combs; but caution must be observed as to the quantity given, as it is possible that it may deliquesce faster than a weak stock of bees can take it, in which case it would run amongst the combs and bees, and perhaps lead to the loss of the colony.

COUNTY ASSOCIATIONS.

We have pleasure in recording the formation of a County Association for Lincoln, particulars of which are promised for the December number of *Journal*, as will be seen by the letter of R. R. Godfrey, Esq., the pioneer of County Shows, and Treasurer of the Lincoln Association. Hard in his wake will be found O. Poole, Esq., of Uphill, Weston-super-Mare, who has invited the bee-keepers of Somerset, Dorset, and Devon, to unite in forming a West of England Apiarian Society; and we most earnestly hope that all interested in this grand movement for the benefit of mankind will at once send their names to the enterprising volunteer secretary above named. Eager also in the front is W. N. Griffin, Esq., of Alphington, who is sanguine that Devonshire will form an Association of its own, and has kindly offered his services as Secretary *pro tem.*, under the presidency of S. Bevan Fox, Esq., whose reappearance in the bee-world will be universally welcomed.

For Liverpool and district William Watkin, Esq., Sandfield Cottage, Roby, near Liverpool, has come to the front, and volunteers his services. He says:—

'I feel certain that you have hit upon the right idea to insure the success of the central body in London.

'If we can get *two* only, or even *one* member in *each county* to take the matter up in earnest, then I venture to say, the British Bee-keepers' Association has a brilliant future before it. Let us only have a fair start, and I feel certain that in a very short time we shall have an organisation equal to any of our Continental friends, who have been so long in advance of us in this respect.'

Yorkshire has an offer of service from J. G. Kirsten, Esq., of Bridlington; and we have strong faith that bee-keepers of that county will rally round their competent standard-bearer.

Mr. Charles Tite, of Yeovil, is willing to work for Somerset or Dorset, if County Associations be determined on; but, under any circumstances, he *will work*. He has been one of the foremost in promoting branch societies, and the success consequent upon his endeavours is, we think, highly satisfactory.

THE NEW HIVES, 1875.

In our last we promised to illustrate and show how to make the hives which won for us at the Palace Show the sovereigns and silver medals offered in Classes 2 and 5—the former 'For the best moveable-comb hive (to include covering) for depriving purposes,' and the latter 'For the most economical (best and cheapest) complete hive on the moveable comb principle for cottagers' use'—and we now proceed to do so. In

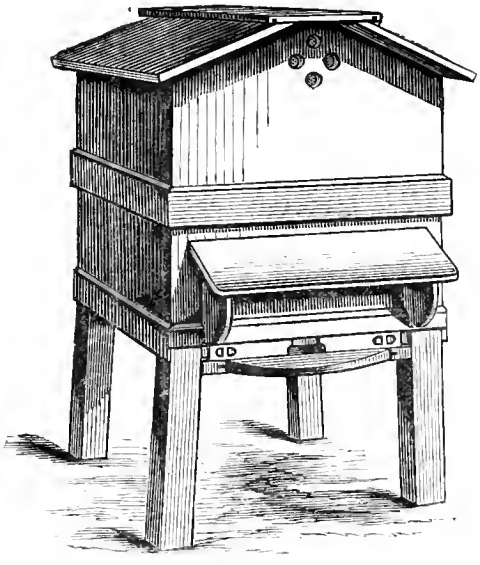


Fig. 1.

the first-named there was a slight departure from the dimensions of our Frame Bar-hive of last year, which was not intended; but having, just before the Palace Show, lost our carpenter by sudden death, we were compelled to get our hives made in the best way we could, and hence the deviation—which, however, only affects the depth of the frame. Under any circumstances, on judging a hive, its size would not weigh with us so much as its principle of construction; for it must be manifest that a hive of fixed size will not suit all localities equally, as, if large enough for Penzance, it might be too large for Scarborough, or *vice versâ*.

In hive construction we allow ourselves to be governed by the facilities which the localities afford for procuring suitable material; and since we have found that the quilt, properly applied, ensures perfect dryness in the brood-box, our predilection for pine-wood has somewhat mitigated, and we, with confidence, use white or yellow deal, which is much cheaper and more easily and generally attainable. Acting upon this assurance, we intended our hive-sides to be composed of deal of nine inches in width, double, and with dead-air space between

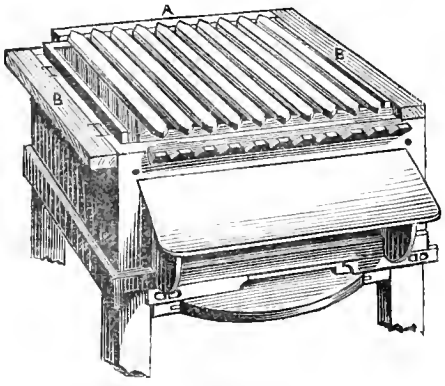


Fig. 2.

on all sides; a rim of an inch in thickness to be fitted round the bottom, and a similar arrangement, subject to the necessities of the frame's reception, to be applied to the top, making the hive, when complete, as nearly eleven inches in depth as the materials would permit, for, as is well known, the so-called nine-inch boards are not always of exactly that *width*, nor do 'inch boards' invariably prove of the *thickness* indicated. The hive, when com-

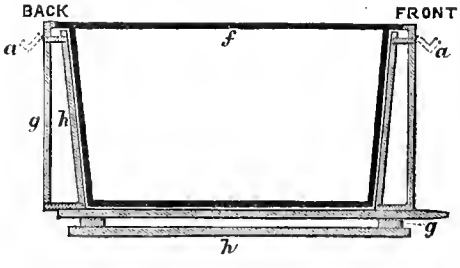
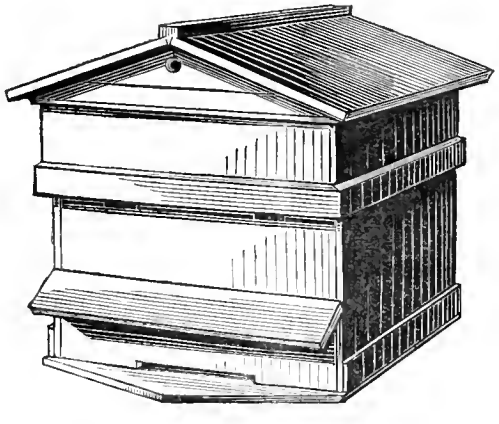


Fig. 3.

pleted, bears a strong resemblance to our Improved Cottage Woodbury, but is longer from front to rear, and deeper; it has ten frames and a vulcanite divider, which will fit in between any pair of frames, and, being almost as thin as zinc, will cut off any part of the hive without incommoding the bees. As will be seen (fig. 2), the ends of the frame-bars are mitred, and fit into corresponding racks at either end, so that the exact position of the

frames must be preserved while they are thus locked in their places; but these racks are so constructed as to be moveable at pleasure, falling outwards on hinges, as shown at *a a* (fig. 3), thus releasing the whole of them, and rendering them capable of movement in any but a longitudinal direction. Dummies are improved away altogether; and for the purpose of obtaining lateral space, to permit the withdrawal of the frames, the inner side-walls of the hive are made moveable, and may be instantly released by raising the side-pieces, B B, which are hinged to the outer walls, when *e* falls outward, as in fig. 2, and creates the space required. Fig. 3 shows a longitudinal section of the hive-box, and, as will be seen, the frames rest at either end on a narrow edge of hard wood, which is far preferable to zinc, as it is comparatively non-conducting, *a a*, the racks being thrown open. The frames (and the hive in their direction) are made shorter at bottom than at top, so that in lifting them out the liability to crush the bees, so general in square hives, is materially lessened, and their ends being made of light material, they are furnished with a narrow bottom rail to preserve their rigidity while comb-building goes on, when they may be removed or not at the pleasure of the bee-keeper. The legs of the hive run up inside its corners, as in the Cottage Woodbury, than which there can be no better arrangement, as they thus afford the most solid fixing for the hive walls, and permit the runners, *g*, for the floor-boards to be fixed immediately under the inner walls, so that the floor-board itself need be little wider than the bottom of the hive inside—a valuable feature for preventing bee-crushing. The floor-board is reversible, and all the externals are made after the patterns used in our Cottage Woodbury and Frame-bar hives, which we confidently believe are generally acceptable.



THE COTTAGER'S HIVE, consisting of hive, floor-board, carpet, quilt, super-cover, and roof, is made of mill-sawn deal, unplaned (for cheapness), and the whole is offered for 10*s*. It is a considerable improvement on the prize hive of last year at 6*s*. 6*d*., but for all practical purposes the latter is quite good enough; for as a model of a Woodbury, it is unexceptionable, and it is capable of being improved into a high-class double-cased hive. The stock hive of this year is, like its predecessor, made of half-inch wood, but is fitted with moveable racks to front and back, so that the frames may be fixed or relaxed at pleasure. They rest upon zinc runners, which, however, ought to give place to vulcanite, as being less expansive and conductive. In all other respects it is similar to the inner casing of the Cottage Woodbury hive.

OUR HONEY-KNIFE.

At last we have been enabled to produce a honey-knife which, we think, will be found second to none in usefulness. It is of elastic steel—similar, in fact, to a palette-knife; its blade is cramped near the handle, and is sharp at the back on both sides. The blade is

sharpened from the underside all round, so that in use it cuts like a chisel, and, being broad, is most convenient for removing the cell-seals as they are shaved off. The upper face of the blade is perfectly flat, so that it is useful for separating comb from plane surfaces, which no other knife will do without being set at an angle which often causes injury to the comb.

MR. COWAN'S EXHIBITS.

We have great pleasure in submitting illustrations from photographs of the apparatus devised by Mr. Cowan for quieting bees, which took the prize at the late Crystal Palace Show. In principle the smoker is similar to the old-fashioned fumigator, but is small and light, so that it can be held in the mouth and blown through by non-smokers, and may perhaps not seldom be used *the other way*, by lovers of the soothing weed.

The chief value claimed for it is that it can be kept alight by the mouth alone, and its fumes directed against any cluster of bees that may require dispersing, thus leaving both hands at liberty for manipulating the frames and preventing the trouble of relighting.

Fig. 1 is the smoker, the dotted lines showing its interior construction, and, as will be gleaned at a glance, the lower part requires filling with

tobacco and lighting with a vesuvian; the cap with mouthpiece is then put on, and the lips being applied, the smoke can be directed to any point and in almost any volume.

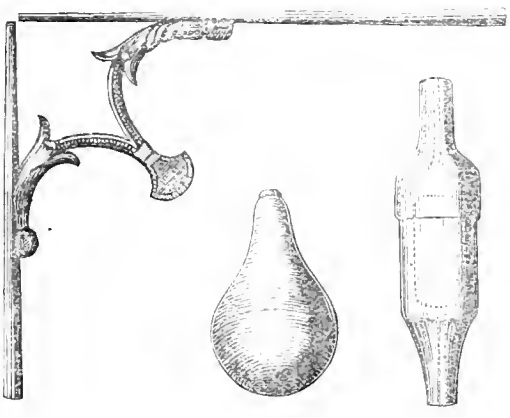


Fig. 2. Fig. 3. Fig. 1.

Fig. 2 is a spray producer, after the pattern invented by Dr. Siegel in his steam spray inhaler. The perpendicular leg of the machine is placed in a small bottle of syrup, and the horizontal tube placed in the mouth, when by blowing, a jet of spray is produced by the air through the horizontal tube rushing over the top of the perpendicular one, and creating a vacuum in it into which the syrup rises, and is blown to atoms.

Fig. 3 is for a similar purpose, it is of india-rubber, and if squeezed, and its end placed in a cup of syrup, it will charge itself and be ready for use.

In operating, the inventor says, 'I generally give a few puffs of smoke with the smoker, then remove the top of the hive, and next shower the syrup on the bees with No. 2; this instantly quiets them, and I then use No. 3 to squirt some syrup between the combs. After this the smoker will keep them perfectly subdued. . . . I have succeeded in uniting bees from two hives with this apparatus, as the shower covers each bee with a fine spray of syrup, which, if scented, is sufficient for the purpose.'

NATURAL HISTORY AND ECONOMY OF THE HONEY-BEE.

At the late Crystal Palace Show, in Class 31, 'For the best and most interesting collection of natural objects, connected with Apiculture, illustrating the natural history and economy of the honey-bee,' Mr. W. Carr, of Newton Heath, Manchester, exhibited a large collection of a most interesting character, for which he was awarded the bronze medal of the Association. We give the list below, and although the articles were not all 'natural' they were highly instructive, and formed a museum, the mention of which will we hope, stimulate others to the formation of similar, or, if possible, superior collections.

1. Brown case. Showing the ravages of the wax-moth, with the male and female moth.
2. Glass case with workers. Drones and royal cells combs.
3. Glass case with English, Ligurian, and Egyptian Bees. Drones and queens, hornets, wasps, and humble-bee.
4. Box with comb, and wax-moth ravages.
5. Box with comb, eaten by mice.
6. Small box with wax-cells given the bees.
7. Glass box with humble bees and nest.
8. Glass box with Carder bees and nest.
9. Basket with nest of Carder bee.
10. Basket with Tree wasp nest.
11. Glass box with Trigona or stingless bees and nest.
12. Glass box with curiously formed comb.
13. Small box with bee-louse (Braula cæcaon.)
14. Small box with encased queen.
15. Small box with seven queens taken from a hive after the second swarm had left.
16. Small box with bees that died of dropsy.
17. Small box with drone-breeding queens.
18. Small box with two bees killed in fighting, with their stings fastened in each other.
19. Two improved long queen-cages.
20. Two small queen-cages.
21. Booth's drone trap.
22. Pen-and-ink drawings of bees to illustrate the anatomy:—1. Internal anatomy; 2. External anatomy; 3. The bee's stomachs; 4. The queen's ovaries; 5. The bee's head; 6. The bee's leg in sections; 7. The bee's sting; 8. The bee's wing; 9. The bee's antennæ; 10. Hexagonal cells showing the angles of the rhomboid plates, and the bees; 11. The underside of abdomen of worker-bee showing the wax-pockets.

MR. BAGSHAW'S RECIPE FOR METHEGLIN.

Select 'combs' free from brood that have had the honey drained from them; place the combs in a vessel, and put as much lukewarm water on them as will enable them to swim; let them stand two days and stir occasionally; strain the liquor; let stand one day: skim the scum from the liquor carefully, and filter the sediment; when clear, boil an hour. The liquor will be sufficiently strong if an egg will float in it. To three gallons of the liquor add 1 lb. raisins, 1 oz. ginger, and seven or eight laurel-leaves. When cool, add a little brewer's barm, and after standing a day barrel it, leaving the barrel open for a few days to work, then cork it up and let it stand for some months before bottling it.—Thomas Bagshaw, *Longnor*.

DESCRIPTION OF EXHIBIT, No. 50, Class 8.

Stock-box, a ten-framed 'Sibertswold' hive, gross weight, 36 lbs, nett ditto 13¼, with two supers of wood and glass, No. 1, No. 2, gross weight, 52½ lbs., nett honey, 42½ lbs., by Rev. Fred. Thos. Scott, Vicar of Sibertswold (or Shepherdswold) near Dover.

HISTORY OF EXHIBIT, No. 50, Class 8.

The stock-box, a ten-framed wooden hive, the 'Sibertswold,' mounted and made by the Rev. Fred. Thos. Scott, with projecting bars precisely similar to one exhibited by Mr. W. Pettitt, at Paris, where it obtained a medal. This was tenanted May 22, 1874, by a prime swarm, weight 5¼, from Mr. Merryfield's apiary at the Earl of Guildford's Gardens, Waldershare Park. The box was rapidly filled with comb, built remarkably straight, in each of the ten frames (two are exhibited in stock-box), and on June 26, 1874, a mahogany 'Sibertswold' hive was put on as a super, which, with four combs and about 6 lbs. of honey, was exhibited at the Crystal Palace Show, Sept. 1874.

The stock was wintered in the usual way, covered with one piece of carpet, and in the spring, March, 1875, fed gently with something less than 2 lbs. of sugar and water, the bees at this time being very numerous.

May 6, 1875.—Super No. 1 (box of wood with glass front) was placed in the hive and rapidly filled with comb and fair quantity of honey, and as the bees, notwithstanding the supply of additional room, occasionally hung out.

May 25, 1875.—Super No. 2 was placed *under* No. 1, and the bees immediately commence comb-building and storing honey in this, nearly filling it in the course of a fortnight; but after this time, the second week in June, very little progress was made in this or any other super or hive in the apiary.

July 20, 1875.—Super No. 1 was removed, the gross weight being 32 lbs., nett 27 lbs.

Sept. 13, 1875.—Super No. 2 was removed, gross weight 20½ lbs., nett ditto 15½ lbs., giving a total nett honey from two supers on one stock 42¾ lbs. The weight of the stock box at this time, Sept. 13, was gross 36½ lbs. nett 13¼ lbs.

A Short Account of Apiary, Locality, Pasturage, &c.

The Apiary, in which the hive with its super stood, is located in a small piece of copsewood, kept low by constant cutting, adjoining the Vicarage gardens at Sibertswold, which parish lies on the highest range of the chalk hills, six miles from Dover, ten from Canterbury, and is about 400 feet above the sea-level; the soil is dry, and the bee-pasturage such as is usually found in the chalk districts, consisting first of willow blossoms in the early spring, followed by trefoil, and maple in April and beginning of May, and succeeded by that crop which affords the staple supply of honey to most stocks of bees in these parts, viz. the sanfoin or cinque-foil, this is grown, more or less, by almost every farmer in the district, and I have observed for many years that the honey-harvest in the neighbourhood is very much affected by the abundance or scarcity of the blossoms of this plant, and the length of time it is allowed to stand on the ground; very frequently it is cut down at the beginning of June, according to a country adage:—

'On Saint Barnabas,
Mow your first grass.'

After this time the bees depend for their supply of honey on casual honey-dews, white clover, that springs up in meadows and waste places, and lime-trees, if there happen to be any in the vicinity. This year, or rather the summer of 1875, has been a most unfavourable season for honey-gathering; there are no less than sixteen stocks and swarms in the apiary of Sibertswold Vicarage, but the yield of honey taken from the whole of them, with the exception of the stock described above, will not amount to 20 lbs.; and many of them, at the present moment, are at starvation-point. The motto therefore which as a bee-keeper I would now adopt is, *Le bon temps viendra.*—Fred. Th. Scott, *Vicar of Sibertswold, near Dover.*

Correspondence.

*** *These columns are open to Subscribers, so that their queries, replies, correspondence, and experiences, may be* fully *and* faithfully *recorded: and for the discussion of all theories and systems in Bee-culture, and of the relative merits of all hives and appurtenances, that the truth regarding them may be ascertained. The Editor, therefore, must not be expected to coincide with all the views expressed by the various writers. All Correspondence is addressed to the Editor.*

CRYSTAL PALACE SHOW—HIVES.

May I venture to suggest an alteration in principle in the framing of the Prize Schedule for future Shows? I would eradicate that clause which insists upon some novelty to entitle the exhibitor to a prize. Surely this provision is calculated rather to set a premium upon the mechanical genius of the contriver than to secure the production of the best hive for the purpose of bee-culture. If a hive is the best, it should not be disqualified from receiving the first prize two or more years consecutively, because the exhibitor refuses to make an alteration which he considers would rather deteriorate than improve.

I thoroughly believe that any who have used your broad-shouldered frames as largely as myself during the past season, will agree that there was no hive at the Show (not even your own, with its ingenious dummy arrangement) which for practical utility could compare with your model hive of 1874. My own apiary, with its eleven hives made upon this principle, has been, as you yourself can bear witness, a practical proof of its efficiency.

Many novelties, and so-called 'new inventions,' are really not new at all, and I could mention several which I had seen in use some time before the prize was accorded to the so-called inventor.

Let us keep steadily in view the one object of obtaining, especially in hives, the very best model, and when we have attained unto the highest place, let us be allowed to hold our position until supplanted by one who deserves to be placed higher.

One word of advice to disappointed exhibitors, in which rank I am myself included. Would it not be much better that we should bear our disappointment patiently rather than indulge in unseemly censure of the Judges, because they failed to see as we saw, or possibly by an error in judgment did not accord the prize to us?

Let us remember that we cannot all win the prize, though we all want to win, and probably think ourselves entitled to do so. There must be some disappointments, and he who bears disappointment best is, in my opinion, doing a very good part towards the success of bee-culture, which we profess to have at heart.—Henry Bligh, *Vicarage, Abingdon.*

What I saw at the Exhibition of Bees and their Appliances at the Crystal Palace, on Thursday, 22nd Sept., 1875.

An unknown bee-fancier, with whom I entered into conversation on the above date and occasion,

asked me to write an article in the *Bee Journal* on the subject which we were discussing, viz. the non-adaptability of wooden hives and wooden bars for the storage of honey, especially for the use of the cottager. I saw a great number of beautifully made hives of wood, but none adapted for them. In fact, it is a question of price; they cannot give up their old straw skeps at 10*d.* each, unless something equally cheap of a different construction is offered them; in the same way that Father Mathew was unable to induce people to become teetotallers, because he could offer them nothing cheaper than tea at 6*d.* a cup, and soda-water at 4*d.* per bottle. I saw a gentleman very energetic in explaining the advantages of wooden bars, assuring his listeners, myself amongst the number, that they could be extracted at pleasure, as the bees never fastened them down; this I doubted, and on going to the next counter there was one of these bar-hives exhibited full of honey and not one of the bars could I move, for I tried every one, notwithstanding the red cord that was intended to keep us from touching. I also saw another young man touting a very elaborate new invention of a wooden hive; and on showing and proving the absurdity of his remarks, the answer he made me was, 'We do not keep bees, we only make the hives,' in the same way in which those persons who make our skates, and try to persuade us to buy all kinds of eccentric patterns, never skated in their lives. I also saw a new machine for extracting honey from the combs, but then one must buy one of the wooden bar hives, in order that the bars may fit the machine. The only useful hive I saw was Mrs. Pagden's, because it was made of straw. I object to wood and to give 30*s.* or 2*l.*, or even more, for a wooden construction when a straw-hive with a wooden top pierced with three holes for bell-glasses, costing only 4*s.* 6*d.*, will answer just as well. I was told that it was unnatural for bees to work up in glasses and that the use of them was being discontinued. I hope not. I have kept bees for twenty years, and I shall be a 'Hivite,' as long as I do keep them.

If hives are never taken up, but the honey extracted by a machine and the combs replaced, how are we to obtain our supply of bees-wax? I suppose that will go up in price like all other household necessities. I also saw a wooden contrivance for making artificial queen-cells. Poor queens! But I did not see any one who could tell me how and when the queens become fertile.—J. R., *Croydon, Sept. 30th.*

[Our correspondent appears to be unaware of the fact that a bar-frame hive at 3*s.* was brought into direct competition with the straw skep, and may still be obtained, but, like the skep, it is minus floor-board, crown-board, and roof.—Ed.]

CLASS 12—FOR THE BEST GLASS SUPER OF HONEY (EXHIBIT No. 78.)

I was a purchaser of the above super, which obtained the first prize at the Crystal Palace, but being shortsighted, I could not, from outside the rope, inspect the super critically. It was labelled '1st Prize;' the contents looked handsome, and I bought it. On its arrival at home I examined it, and at once noticed four places where it was affected by wax-moth. Two spots showed on the flat outside surfaces of the two outside combs, which in other respects were beautifully perfect; other two spots were between combs, but the web was plain enough; on the board below were several brown little skins or husks. I have just taken the combs to pieces, and find all but the two outer ones much damaged by moth and grubs. I pulled out quite a solid piece of web, with three large maggots. The combs are drilled through from one to the other at about 2 to 3 inches from the bottom; but with some, all the lower part has suffered, and is dirty, powdered, and dark in colour. The super was glass, let into a deep groove in the adapting-board; the combs were built on a light framework of wood, with four posts, which were glued to the adapting-board; and the combs being fastened to the glass, I could not get to the inside until I had, with a centre-bit, bored through the adapting-board exactly under the posts, and turned the ends of the posts off. Then only would the board come away. The sound comb contains most delicious honey, but ought the super to have taken '1st Prize?' On its arrival from the Palace, I at once pointed out to my family the traces of the moth; but not having conveniences for storing so much comb, delayed separating the combs until now.—James Allen, *Warrington House, Duppas Hill, Croydon.*

FOX'S SUPER.

I was astonished in looking over the awards at the Crystal Palace Show to find that the Judges thought a super of 86 lbs. weight an impossibility, and yet considered two supers only 6 lbs. lighter, a reasonable thing for one stock of bees to produce in the season of 1875. I should like to know what was the radical difference in these two stocks. Is Horsham a better locality than Kingsbridge for honey? Were the Horsham bees a stronger stock than their competitors; were they superior in breed; was their hive or house better constructed for honey-gathering purposes; or had their hive a large space for breeding purposes, and if so, how much?—Thomas Bagshaw.

HINTS AS TO THE FORMATION OF COUNTY OR DISTRICT ASSOCIATIONS OF BEE-KEEPERS.

Please allow me to follow up my September letter by making a few suggestions as to the formation of County or District Associations of Bee-keepers, premising that they are of a very elastic description. If a few of the most enthusiastic bee-keepers of any district can be got together, I fancy there will be but little difficulty in appointing a small Committee with Chairman, Treasurer, and Secretary. Then funds should be raised to cover preliminary expenses. This could be done by seeking donations, and by members paying a year's subscription in advance.

A number of simple rules should next be drawn up—the fewer and more simple the better. For instance:—

1. That the title of the Association be the —— Association of Bee-keepers, and its operations extend over the Counties of ——.

2. That its objects be the improvement and increase of bee-culture, especially among cottagers, by the circulation of cheap and simple instructions on the subject; by offering prizes at local agricultural and horticultural shows for improved hives and apparatus, and for the best exhibits of honey; and by supplying stocks of bees and other requisites at moderate prices.

3. That the annual subscription be —— a-year, payable in advance.

4. That the management be placed in the hands of a Committee, consisting of —— members, to be elected annually; and that the said Committee appoint a Chairman, a Treasurer, and a Secretary.

A collection of interesting objects connected with apiculture could be got together (after the style of that exhibited by Mr. Carr at the Crystal Palace) to add interest to local shows; expert assistance could be obtained for the purpose of giving practical lessons in public and in private at suitable places and at convenient periods; members could be encouraged to write essays to be read at their periodical meetings, when all unusual occurrences and knotty points could be discussed; and some might even be induced to lecture on bees and bee-keeping generally during the winter months. For the assistance of the latter and the members generally, a set of suitable diagrams could be procured when the funds would allow, if the Central Association does not move in this direction.

Now for the great question of finance. Supposing that 2*l.* or 3*l.* could be raised at the first meeting, a number of neat circulars could be printed, giving the names of the officers, setting forth the objects of the Association, and asking for assistance. The Secretary could send these to the leading inhabitants of the district selected (say the clergy and magistrates to begin with), taking their names and postal addresses from one of the dictionaries, which are now to be met with at most public institutions and houses of business, selecting of course the most recent edition. If it is requisite to begin on a very small scale, there is seldom any difficulty in selecting such ladies and gentlemen as are most likely to render assistance in any given district. An envelope with the address of the Treasurer or Secretary printed thereon, enclosed with each circular, might prevent mistakes, and would, in all probability, amply repay the few shillings they would cost. The expense can easily be calculated. Say 500 circulars (with fly-leaf to save envelopes and postage), 7*s.* 6*d.* to 10*s.*; 500 printed envelopes for enclosure, 3*s.* 6*d.* to 5*s.*; 500 halfpenny postage stamps, 1*l.* 0*s.* 10*d.*; outside total, 1*l.* 15*s.* 10*d.*

Should money be plentiful, the numbers could of course be increased; or a neat and brief little pamphlet on the pleasures and profits of bee-keeping could be enclosed with each circular. But, of course, the Treasurer will take care to 'cut his garments according to his cloth.'

I make these suggestions in the hope that the matter will be fully discussed in the *Journal*, and that many gentlemen will do their best to form District Associations without delay.—C. T.

AN ASSOCIATION FOR DEVONSHIRE.

It will be seen by last month's *Journal* that various efforts are being made by several persons to start a Bee-keepers' Association for the county in which they live. I had a letter a few days ago from a gentleman in Somerset, asking me whether I would join one for the West of England, which he is trying to get up; but on further consideration, I think that if such an Association could be raised, it would have too large a field to work over to do much good. And I think that County Associations would be more advisable, having as their head the British Bee-keepers' Association. We therefore propose to start one for Devonshire; and we think that half-a-crown a-year, as subscription from each member, sufficient, as by this means more persons will be likely to join.

Mr. Bevan Fox (who, I think, is well known by nearly all bee-keepers) has kindly consented to become President, and for the present I will be happy to act as Honorary Secretary; and there are several persons who will join us; and I have no doubt that when once the banner is raised others will soon flock to it. So, if the bee-keepers in Devon on reading this would like to become members, let them kindly send in their names to me. When we have a sufficient number on the list, we will call a meeting, in order to form rules, and draw up a plan for the proper working of the Society, and the promoting of bee-culture in a humane manner throughout the county. I hope many will come forward.—Wm. N. Griffin, *Rock House, Alphington, Exeter.*

COUNTY ASSOCIATION FOR LINCOLN.

With much pleasure I inform the readers of our *Journal* that we have established a Bee-keepers' Association for the County of Lincoln. A copy of our rules, with a list of managers and members, I hope to forward for December's *Journal*. In the meantime our Hon. Sec., the Rev. D. W. Pennell, of Grantham, will be delighted to receive the names of ladies and gentlemen wishing to enrol themselves members of the Lincolnshire Bee-keepers' Association.—R. R. Godfrey, *Treasurer, Grantham.*

INTRODUCTION OF ALIEN QUEENS.

The apiarian world is greatly indebted to you, Mr. Editor, for your able and interesting article on 'Bees feeding Encaged Queens,' in the September number of the present volume, p. 90. The principle there laid down, as deduced from actual practice, is one of great importance to all cultivators of the honey-bee, although, as a rule, it has exceptions.

That '*unless there be hatching brood in a hive the safe introduction of an alien queen by the honeyless cage cannot be relied on*,' is undoubtedly a maxim which must henceforth claim the assent of of all. In three cases during the month of July last, I inserted alien queens by means of my queen-cage, in stocks which had become queenless after swarming, there being neither brood nor eggs in any of the three hives, with the exception of a small quantity of drone brood on the point of hatching,—the young queens having been lost on their hymeneal

flights some twenty-five days previously. Two of these stocks received the queens, after twelve hours' imprisonment, with every symptom of delight. The third neglected the prisoner, leaving her to perish from starvation.

In these experiments the centre comb in each hive was removed, and the cage so placed that the queens could not help themselves to food. In all these instances there were young bees of not more than a few weeks old, and these, doubtless, performed the office of nursing bees to the imprisoned queen-mothers.

But how shall we explain the fact I am now about to relate? Whenever I have received Ligurian queens from you, on taking the black queen from the cage and putting the Ligurian in her place, I have almost invariably given the said black queen to the bees which had accompanied the Ligurian sister, encaging her under a wire pipe-cover on the small piece of comb in the little box in which the Ligurians had travelled, and in nine cases out of ten, the black queen has been gladly welcomed! Shall we say, then, that in these cases also, the travelled bees had not passed beyond the nursing age?

This is certainly possible, but, perhaps, scarcely probable. However this may be, the safest plan in all cases is, to place the cage where the queen can help herself to food. To show the obstinacy of bees, occasionally, in refusing to receive a stranger-queen, allow me to relate an experiment made only last week in my apiary. Having a Ligurian queen which I have prized highly, on account of her colour, size, and strain, I was anxious to remove her from a weak stock to the head of a large and flourishing colony of black bees.

The black queen was duly removed, encaged twenty-four hours between two brood combs, and replaced by the Ligurian, which after a short imprisonment was introduced to the hive. From the agitation of the bees at the entrance, and the peculiar fluttering noise from the interior of the hive, I had no doubt that the newly introduced queen was encased. After several hours of suspense, in the vain hope of a cessation of the commotion, on opening the hive I at once discovered the well-known little ball of clustering bees which betokens an encasement, and from the centre of which the poor queen was quickly released and recaged uninjured.

Four times was this operation repeated, after imprisonments of various periods, but always with the same result, until at length, wearied with the obstinacy of the bees, after more than a week's trial, I withdrew the queen—sprightly, uninjured, and in fine condition—and presented to the rebels an unimpregnated princess, kindly sent to me by J. Wallis, Esq. of Leamington, for experimenting upon, which was immediately, and with every demonstration of joy, received as their chosen ruler. As regards this princess, more anon.

To another set of rebels which refused a queen, I yesterday applied the fumes of fungus, and while comatose, introduced into their midst the rejected one, with her body-guard. This morning I had the pleasure of seeing her perambulating the combs with every mark of attention from her new subjects. Out of numerous introductions by means of fungus, spread over many years, I have not experienced a single failure, nor do I think that the effects of the fungus have been in the slightest degree injurious to the bees. To all, save skilled and practised apiarians, I strongly recommend this plan of introduction. One invariable effect of the fungus is excitement, lasting for one or two days, during which the bees exhibit every symptom of having lost their queen, but if the hive be examined the newly introduced queen will be found perfectly happy amongst, and honoured by, her people. The excitement gradually calms down and the work of the hive progresses as before, or even with greater energy. Indeed some of my strongest and most flourishing colonies have received their queens unconsciously.

Apologising for the length of this communication, and hoping, with your permission, to return to the subject, I am yours obediently, GEORGE RAYNOR, *Hazeleigh Rectory, Maldon, Oct.* 19.

BEES FEEDING ENCAGED QUEENS.

It was with feelings of some surprise, I noted last autumn, that to such able authorities as 'our Editor' and the hon. secretary, Mr. Hunter, it did seem a new, if not incredible idea, that worker-bees should feed imprisoned alien queens; and on opening the September number of 'our own *Journal*' I must own to have been again staggered when my eye rested on a paragraph in italics in the editorial department under above heading, as follows: '*Unless there be hatching brood in a hive, the safe introduction of an alien queen by the honeyless cage cannot be relied on*,' to which I was fain to enter a decided protest; but, on careful perusal of the editorial remarks, I found the general scope of the able article to somewhat modify the objectionable passage.

In my autumnal searches for queens to be dethroned, it is at all times a positive relief when I find no traces of either eggs or brood—and why? Because, without the material from which to fabricate a successor to the throne, I can calculate with much more certainty on the workers of necessity accepting the proffered sovereign. Confirmatory of this view, I have just completed the annual reduction and adjustment of my colonies, which necessitates the substitution of a good many young and imported queens for the worn-out and mongrel; and curious enough, in every case, without the least trouble or mishap, saving in one octagon colony in the lower box, of which I found a little stimulating feeding had had the effect of causing the queen to breed, there being eggs, grubs, and sealed brood in all stages in three of the frames. On the afternoon of same day as the queen was removed, her intended successor was placed solitary in a honeyless cage beyond the reach of all food, and on the morning of the third day, before leaving for town, I set her free. Not liking the appearance of the workers of this colony, the following afternoon, I opened it up, and found the queen badly encased; several royal cells were excised, and she was again caged till the third day thereafter, when, after a fresh lot of royal cells were extirpated, was liberated, with no better results; again imprisoned for a similar period, and similarly freed, to be

once more encased; and owning myself fairly beaten in the only instance where 'hatching brood' was present, their old queen, fortunately being preserved, was then restored. The workers were at all times ready to fly at the proffered queen with the savageness of tigresses, yet they carefully fed and tended her through the three periods of her solitary confinement.

While dissenting from the opinion that 'hatching brood' is any help, but on the contrary a hindrance to the introduction of alien queens,* I heartily concur in all 'our Editor' has so well said of the value in such circumstances of the young or nurse-bees. Whether it be from feelings of awe, they respect the royal person, be she what she may, or simply the guileless disingenuousness of youth accepting without doubt, I never liberate a valued favourite queen with more confidence than when intrusting her solely to their fostering care, and as to how I accomplish my purpose I give the following illustration :—

A consignment of imported queens, the late spring having been delayed till June, with every hive loaded with brood, I adopted the plan of driving the reigning queens, with a small proportion of the youthful element, and setting down these artificial swarms in hives with frames, and empty comb on old stances, I moved the stocks to fresh sites, where they speedily got rid of all the adult or flying bees, and into which I introduced with the greatest ease imported queens with complete success, and subsequent prosperity of stocks and swarms.

P.S.—Bees are 'camstairy,' to use an expressive Scottish word, or, as Mrs. Tupper puts it, 'do nothing invariably.' I looked on the landing-board this morning (21st October), and instead of finding the body of the young queen left encased yesterday, the rain-soaked, shrivelled remains bore a much greater resemblance to the old queen; and on opening up the hive, to my great surprise, found that the thrice-rejected youthful Italian was now the free and accepted reigning sovereign of the hive.—A Renfrewshire Bee-keeper.

DO BEES EAT FRUIT?

A correspondent in the London Daily *Times* of September 24th displays great ignorance about bees, in charging the honey-bee with eating his fruit, as it has been proved times without number that the honey-bee never injures fruit of any kind.

When fruit has been injured by wasps or any other accident, the honey-bee will sometimes suck its sweet juices, but it will never break the skin in the first instance. I have put ripe peaches and other fruit on the alighting-board to my hives, so that the bees have had to walk over them in coming out or returning to the hive, but I never knew them to break the skin. I have seen a wasp attack such fruit, and soon make a hole through the skin; the bees then drove the wasp away, and sucked the sweet juice themselves. If I had not seen the wasp make the hole through the skin of the fruit, I should have said it was conclusive evidence that the bees had made it, as I knew there was no hole there a short time before, and now I found the bees actually sucking the juice through a hole; and this is the way so many have been deceived.

Some years since the same erroneous opinion, as is held by the *Times* correspondents, took possession of the inhabitants of a village in America, where a great quantity of fruit of all kinds was grown. This opinion became so powerful that the authorities banished bees from that district; but after the bees were banished they got little or no fruit on their trees, and after a few years' trial those persons that were the most active in their opposition to the bees were the first to exert themselves to get the law abolished, and to offer premiums for the encouragement of bee-keeping

All our best authorities, with the great *Darwin* at their head, have conclusively proved the great benefit of bees in fertilising fruit, &c., by carrying the pollen from the male to the female blossoms, and so fructifying them to produce fruit. I will give you a case near London showing the benefit derived from bees.

Four years since last spring, I went through the grounds and gardens at Highgate of that good lady the Baroness Burdett Coutts, and her head-gardener took us into the peach-house, when he said, 'See! what a quantity of peaches I have got set.' I exclaimed, 'You have, indeed! How do you account for that?' 'Well,' he said, 'I have kept bees a many years to fructify my fruit; but last autumn I bought a stock of Ligurian bees, and they, being hardier than the common English bees, began working earlier in spring, and got into the peach-house when the trees came into bloom, and this is the result.'

Most of the gentry and noblemen that have orchard houses keep bees to fructify their fruit. As soon as the trees come into bloom, they remove a hive of bees into the orchard house, not allowing them to get out of the house, and so they work upon the blossoms, distributing the pollen in their labours, and back to the hive.

I hope this will induce the *Times*' correspondent and others to keep bees, for their own and neighbours' benefit, especially to increase the produce of the poor cottager's garden.—William Carr, *Newton Heath, near Manchester.*

THE SEASON OF 1875.

Although we pluvians of the watery west coast escaped, in a great measure, during the by-past summer, the accustomed deluges to which we are usually subjected, from the mountains of Argyleshire intercepting the well-charged clouds as they come rolling in from the Atlantic and discharge themselves on our devoted heads, it was consoling to hear an

* Without 'hatching brood' we Southerners cannot depend on the presence of unsophisticated young bees. With us, unless some need for 'nurse' bees exists, the disingenuous rascals lose their feelings of awe, and speedily become 'workers,' which, when old, our esteemed friend prefers should be absent when queens are to be introduced; and as age in bees is not a question of time, but of labour, we hope to be excused if we prefer the presence of hatching brood.—Ed.

old farmer's remark that the last was the dryest and finest hay-harvest of his remembrance, and while such lamentable reports reached us of the continuous wet and devastating floods of the usually more highly favoured south, still, withal, with the exception of a few days in the earlier part of July of burning heat, the season, as a whole, was cold and far too dry for the secretion and storing of the honey-harvest, causing the yield to fall far behind that of the preceding, and very much beneath the run of average years.

After the undeviating rule of all poor seasons, all swarms had to be fed, many very liberally, while non-swarming colonies, as is their wont, yield some little, in proportion to their relative strength. In my apiary Nos. 10 and 11 gave the best returns, they stand side by side, being both swarms of 1874, and possess hybrid Italian queens of that year, the former was hived in two 7-inch Stewartons, the latter in a flat-topped straw skep. To prevent swarming No. 10 was nadired with a 4-inch octagon eke, while No. 11, with same object, had at different times two ekes same depth, and harvested respectively :—

No. 10	1 Octagon Super	23¼ lbs.
	1 „	17¾ „
	1 „	14½ „
	1 „	12½ „
	4 Octagon Supers.. ..	68 lbs. gross.
No. 11	1 Abington Glass Comb ..	23¼ lbs. gross.

The colony in the straw hive being light, required some dozen pounds sugar to be administered to keep it through; while the state of the Stewarton called for none, my youthful assistant being equal to the task of dragging it along the floor-board, but finds it impossible to lift it.—A Renfrewshire Bee-keeper.

THE STEWARTON SYSTEM.

It affords me much pleasure to reply to the queries of Mr. H. Jenner Fust, Junr., in last month's *Journal*, anent the above system.

1st. As the Stewarton hive is formed of wood five-eighths of an inch thick, it is imperative it be externally protected from the weather by an outer casing or other means; a light-wooded hive, from its greater porousness and handiness for manipulation, is much preferable to those formed of thicker stuff. The present writer's covers are formed of ¾ inch wood, 26 inches high by 18 inches wide, inside measurement, dovetailed at corners, and joined in one stretch, rest on, without being attached to mahogany floor-boards, kept in position by a moulding round base; some are of square and some octagon form; tops are detachable, and covered with thin zinc to keep them watertight at joints, are well ventilated and painted, with ornamental vase at apex, as figured in No. 13 of this periodical (May, 1874).

2nd. As a rule, the third body-box requires to be added below to increase the breeding space before any flow of honey sets in calling for super accommodation, which it is worse than useless to give before it be required.

3rd. With straight combs and uninterrupted communication between the bees, I invariably treat the three sectional divisions as one, storing the honey in upper box, but by a timeous and continuous supply of super space, in advance of their wants, the skilled apiarian displays the better generalship who can tempt his favourites to store the much greater part of their honeyed store in the supers.—A Renfrewshire Bee-keeper.

ONE ASPECT OF FEEDING.

There is one aspect of feeding connected with the present season on which I am anxious to say a few words, and to elicit from you, Mr. Editor, the results of your valuable experience. It is merely repeating what has been so often said before, to again refer to the lamentable condition of our hives at the end of this season. In some parts of the country it has been better than others, the village where I am at present located being among the *worst*. I have already stated what my hives have lost, and I again repeat that during the experience of nearly a quarter of a century I never knew so trying a period to bee-keepers.

Of course I was obliged to resort to feeding, and have continued it from July to the present time. We now come to the point of my communication. My own bees were comfortably fed and cared for, but in this village are five hundred hives, most of which are neglected and starving. You may guess the results. Supposing each hive to contain only 5000 bees, there was a total of two millions and a half of starving bees! (This number was, of course, reduced by two-thirds when the autumn suffocation took place.)

Two millions of starving bees sniffing out the food of my apiary, hovering round, infesting the entrances to my hives, attacking one after another without a moment's cessation, from daylight till dark, never, never ceasing in their endeavours to rob. No wonder my bees got disheartened with the everlasting din of tens of thousands of robbers about their hives, and occasionally one or more strangers obtained admission. No wonder hundredweight after hundredweight of sugar has been swallowed up, and my bees are none the stronger or heavier.

Now, sir, what is to be done in such a case? I have left no expedient untried for protection. The entrances are narrowed to the smallest limit. The food is supplied by the slow process, and *at night* only. The feeders are covered with cloth soaked in a solution of carbolic acid, the thieves are deluged with tobacco-smoke several times a-day, but still the same process goes on. I was only out for a short time the other day when the hive of splendid Ligurians I had of you last month was attacked, *and every bee destroyed* to my most intense grief. In the course of an hour the hive was sacked, and even the comb eaten away. It is time the hives were fed up to their winter point, but under the above circumstances I dare not give more food than will suffice for the daily requirement of the bees.

As there are others in the same condition as myself, and as my past experience is utterly at fault, I communicate the facts to you in hopes that you may be able to suggest some plan whereby we may be relieved. At present I see no remedy but patience.

It is manifestly impossible to purchase all the bees in the neighbourhood, it would be folly to feed them, it would be cruelty to destroy them. I have proved that Ligurians, instead of being able to repel the attacks, fell the first victims (others have, however, followed since). At present my greatest dread is a few sunny days. I shall be glad to know what you will have to say on this aspect of feeding.—A CARDIFF BEE-KEEPER.

[This is not a case in which 'experience' can be brought to bear, for during the memory of man no such unfortunate season has ever before occurred. It is sad to think that out of the 500 stocks around you, probably not fifty will survive the winter.

The robbing must be prevented at any cost, and we would suggest that the entrances of the hives be protected with muslin or crape, so that the bees from within may get out into a space in front, whilst the robbers should be prevented obtaining entrance. In America the plan of giving bees an airing in winter by artificially warming the hive, and giving them a muslin tent to exercise in is becoming common, and we do not see why it cannot be applied in the present case.

The bees that come out of the hive into the tent or net all go back again as darkness or cold comes on, so there can be little harm done by the expedient, and as it is manifest that in this instance there are no out-door resources for the bees, they will lose nothing by the confinement; and feeding can go on in spite of the brigands. —ED.]

CARBOLIC ACID.

The use of carbolic acid, as a bee-quieter, may not be generally known to bee-keepers. I have used it with success for years. On opening a hive I always have within reach a small bottle containing a mixture of carbolic acid and water—about half of each. One side of the carpet covering the frames is slightly raised, and a feather moistened with the mixture is passed over the top bar of each frame as it comes in view, and every bee disappears below, the degree of intimidation being as great as if smoke had been used. On closing the hive the tops of the frames, and the outside upper edges of the hive, are again smeared with the diluted carbolic, when the carpet, or crown-board, is replaced without crushing a single bee. By this simple plan the opening and closing of hives may be performed with scarcely any disturbance or loss of bees. When introducing a swarm to a bar-frame hive, after shaking out the swarm on a newspaper I always use the moistened feather to guide the bees into their new abode, when the continuous stream of panic-stricken bees rushing helter-skelter into their hive is a sight worth beholding.

Before adopting this plan I have often, on a warm summer's evening spent an hour in getting in a swarm; but now five minutes are amply sufficient.

Another use of the carbolic is to prevent robbing, which it will do effectually if the alighting-board of the stock attached be smeared at intervals of an hour or two during the first day of attack. It is better to use it diluted, as the acid of the pure carbolic is so strong, that the slightest touch destroys a bee, blisters the hands, or injures the clothes. Even the diluted acid must not be too freely used, the feather being wiped before application.—GEORGE RAYNOR.

UTILISING CONDEMNED BEES.

The utilisation of condemned bees forms an agreeable occupation for apiarians during the autumn months, although some of the correspondents of the *Journal* have expressed an opinion adverse to building them up and uniting them as stocks, advising instead that they be used to strengthen late swarms, which, however, should never be neglected when one has weak ones requiring it; still condemned bees are not always required for this purpose, and then they may, by careful treatment, be built up to strong colonies to stand the winter.

Bee-keepers about here are not only glad to part with the bees, but also the empty combs in the hive for the trouble of driving. This year I have secured eight condemned colonies and comb enough to fill one of Abbott's New Bar-frame hives and two Carr Stewarton boxes. These bees were taken some time in the beginning of August, and treated as follows in two Carr Stewarton body boxes, which, by the bye, are capital for the purpose, the combs from four of the stocks being divided between the two, that containing most brood being placed in one, and the empty or most useful for storing honey in the other, and placed side by side on the stands, and the four colonies of bees divided between the two. I immediately commenced feeding the box containing brood as slowly as possible through one very small hole in a plate of vulcanite; the others, on the contrary, were fed as fast as possible through a piece of perforated zinc.

Now, mark the difference! The one fed on the slow process had its combs soon filled with brood in all stages with scarcely any syrup deposited except a little on the top of each comb, whilst the other was filled and sealed over from top to bottom as soon as the little brood it contained had hatched out and the bees rapidly dwindled away for want of young to fill their places. The bees in the two boxes were now united, No. 1, or that containing brood, placed under the one with the honey: they are now what I call a good strong colony well supplied for winter and at a cost of about 3*s.* 4*d.* The other four were treated the same way in Abbott's Bar-frame hive, four of the frames being taken out and placed in another box until they were three parts sealed over, whilst the other four were undergoing the slow stimulative process, and the two lots then joined together. Early in September I procured two Ligurian queens and joined one to each stock. As some of the centre combs contained too much syrup, I gave them a turn in the extractor before introducing the new sovereigns, returned the combs and the extracted syrup in the feeding bottle, the queens at once began to lay, and there is now a fair sprinkling of Ligurian bees.

The above is a good plan for commencing bee-keeping to persons who have learnt the art of driving and transferring, as the expense is almost nothing, bees may be got for driving in almost every country village; *and even if they should die*, the combs are worth the money they have cost in sugar, for swarms the next spring if properly taken care of during winter. But if proper care be taken the death of the bees will be reduced to a minimum; above all, be

careful not to kill them with kindness, *i. e.*, overfeeding. I hardly know which is the greater evil of the two, too much or too little food; if too much, they will have filled the cells, which should be reserved for breeding, and the queen will have no empty cells in which to deposit her eggs, when this is the case the comb should be placed in the extractor, and the bottom parts relieved of their superabundant stores; if you have not an extractor, wind a cloth round the top of the comb and frame, and hang it in the garden when the bees will soon make short work of the exposed part, and the frame may then be returned to the hive.—O. Poole.

WAX-SHEETS.

In your August number you ask correspondents to record their experience with wax-sheets used the full depth. I have used them quite five inches deep in supers. Sometimes the bees have begun to work on them up against the bar and then the comb is safe; you cannot, however, depend upon their doing this, and when they begin on the bottom edge the comb is in great danger of falling. I have had two or three break off this year. In future I intend making my guides with the aid of Mr. Cheshire's invention, which, in my opinion, will quite supersede the more expensive sheets and steel plates.—O. Poole.

The following is my experience of wax-sheets:—

When I divided a stock I furnished all the frames with sheets of various depths, and found the result exactly as you show on page 62, except where I had put them the full depth; and in this case the bees, either mistrusting the security of the foundations, or not having sufficient depth to cluster from the edges, preferred to commence from the edges of the frames *between* the sheets. As this was not what I wished, I had to scrape away their work, and cut down the sheet to 1 inch, when they went to work in the proper manner. Some of the sheets were my own make—not impressed; and they seem to be quite as good as the impressed.

I found one frame, in which I had cut the sheet to three vandyke points, so as to offer three nuclei for clustering on, to be filled more quickly than any with straight edges.—F. L., *Clapham*.

QUEEN INSERTING—FEEDING APPARATUS.

I am happy to say that I was more fortunate with the queen you kindly gave me than with the pure Ligurian; but I am sorry I did not succeed with *her*, as the progeny will not now be of the desired sort. The morning the queen was in the cage I thought I should like to see what she was doing, so as it was very bright I got a piece of glass, and reflected the sunshine to the bottom of the cage, when I could see her plainly moving about. The bees were thrusting their antennæ through the holes in all directions, and feeding the queen.

I send you a description of a feeding arrangement which I have devised, and which seems to me to save trouble. Get one of the globes used for paraffin lamps, also a piece of board. Cut a two-inch hole in the centre of board, and a socket round that for the flange of the globe to fix into. Fasten a piece of vulcanite to the opposite side of the board, and before putting on the globe make the joining inside the hole secure with wax, so that the syrup cannot escape between the board and vulcanite. Then put on the globe, and fasten it outside with putty. This appears to me to save the trouble of removing the bottle every time it requires filling, as the syrup can be poured in at the top. But unless an air-tight stopper is used, only one small hole will be required in the vulcanite to make the bottle a slow feeder; for, as the air is admitted at the top, the syrup will run through much faster than from a bottle where the air is only admitted through the syrup at the bottom. If you think this idea worth anything, perhaps you will give it a place in the *Journal*.—W. S. C., *Bourton-on-the-Water*.

QUEENS AND THEIR PROGENY.

I commenced bee-keeping, about four years ago, with five stocks of black bees and one hybrid (the queen of pure Ligurian breed). I purchased eight Ligurian queens of Messrs. Neighbour, joining seven of them successfully. I have since purchased other stocks of black bees, and Ligurianised them. Last spring—*i.e.*, 1871—my stock consisted of twenty-five, all either pure Ligurians or hybrids. According to theory, all the drones should have been pure; and as there were only five or six black stocks within half a mile of mine, I expected to have had a fair prospect of breeding pure Ligurians. As it was, I rose eight young queens in nuclei from my best and purest stock, and two more from natural swarms; but not one of the progeny of those ten queens was pure. Again this season, with a stock of thirty-seven, including two nuclei, I have had thirteen young queens, with the same result: some are nearly pure, but not quite.

Last May I sold a stock of pure Ligurians to a neighbour about a quarter of a mile off, who had four black stocks. I first transferred the black stocks into Woodbury hives, cutting out the drone-comb; then destroyed one black queen, and exchanged the combs with the Ligurians. They rose queen-cells enough to give two each to the other black stocks; and the result is, the progeny of three of the young queens are pure. The other one was queenless, and a refuge for all the drones driven from the other stocks: this latter had hatched a queen which was lost, and had built one queen-cell containing a dead larva.

Now does not this prove that the black drone (also that the hybrid drone), mating with a pure Ligurian queen, influences the male progeny as well as the female? or why, with my overwhelming number of theoretically pure drones, can I not breed some pure queens?

The honey season here up to the first week in June was very good, and supers filling fast; since which the cold and wet weather has reduced all the swarms and mother-stocks to starvation point, and they have been fed to keep them alive, and in most cases supers have been emptied—I had one from a very forward pure stock weighing 30 lbs. nett.—G. F. Tabram, *Rodborough Vale*.

Foreign Intelligence.

FRANCE.

At the Strasburg last Exhibition, the French Société Centrale d'Apiculture has obtained the highest prize (30 marks) for bee produce exhibited: honey and wax.

ITALY.

The Bee Association has instructed all its representatives throughout the country, to send in their official annual report on the state and result of Apiculture in their respective districts.

The publication of the Dictionary of Apiculture is now more than probable, and subscriptions are invited by the publisher. It will treat upon about 2300 words and idioms, with their equivalents, in most cases in French and German.

The idea of starting the Industrial Bee Company has not been given up. This matter will be finally discussed at the meetings which are to be held during the forthcoming Bee Show.

Humble Bees for New Zealand.—An interesting experiment is being made in the shipment of two nests of humble bees, which have just left Plymouth for Canterbury, New Zealand. The principal object aimed at in the introduction of these insects into the Antipodes is the fertilization of the common clover, the pollen of which the common bee is generally unable to collect, while the 'humble bee,' having a larger proboscis and being much stronger, is able to reach sufficiently deep into the flower to collect the fertilising dust. It is hoped that by this means the plant will be more generally fertilised, and its cultivation largely extended in the colony. The bees which have just left England for the Antipodes were in two separate nests, which had been procured by Mr. Frank Buckland, and packed in a suitable box, where they were supplied with everything necessary for the voyage, including honey, farina, water, &c. They are very fine specimens of the humble-bee. The exact number is not known, as many of the eggs are not yet hatched. They are placed under the care of Mr. John Hall, a member of the Council of New Zealand, who takes a stock of ice for the purpose of keeping down the temperature of the nest while passing through the tropics.

ECHOES FROM THE HIVES.

Kirriemuir.—'I have fourteen stocks of Ligurians and can endorse every word of praise in their favour except for their gentleness — mine I find to be *perfect little demons*, flying at you without the least provocation, so I like to be well protected.'—W. D.

Reigate.—'I have to express to you my great pleasure at the Show at the Palace, and especially with your hive, the best I have seen. I see only one thing to desiderate in it, and that is the Stewarton slides (I am wedded to them); I use the Lanarkshire hive, and like it much, but yours seems better; it seems to me that slips of wood to drop between could easily be used with yours. You must forgive me if I seem presumptuous in suggesting this to you; but I have found the slides so very useful that I cannot give them up. They are so easily withdrawn during winter for the quilt to lay on, and can give such easy access to the hive at any part for feeding purposes. Another hive (though so small) that seemed good and cheap, was the allotment hive of Mr. Wood's.

I know a large bee-keeper who has all his hives under the management of his gardener, under the skep system. I have advised him to write to you, and have recommended him your hive, and the *Bee Journal*, so you will probably hear from him before long. I have this noon joined my stocks for the winter, found very little honey in any hive (one had no queen), but plenty of brood, owing I believe to slow stimulative feeding. I have cut away the drone comb throughout, supplying its place with workers, and have also saved the brood by placing it in the frames of joined stocks.

'My principal objection to the Lanarkshire hive, is the want of proper covering and stability for out-doors.

'I was very much disappointed not to see the Sherrington Slinger at the Show. I did not see one cheap enough, the best seemed "Novice's." Why do you not lead the way with one? We all know you could if you tried. I have fully proved the wax-sheets a delusion and a snare, as in all my frames the bees have begun as you described in the *Journal*, p. 62.'

South Devon.—'I am afraid the very bad season will injure the future Crystal Palace Shows. I have kept bees for thirty years, but do not remember such a one. I began the season with ten hives in good condition, and have not taken more than thirty-five pounds from the whole.'—J. E.

Newton Kyme, Tadcaster.—'The reply to my inquiries is the same from all quarters about here. Hives dead or no honey. From fourteen hives, eleven straw, one Nutt, one Woodbury, I have not got an ounce, and six of the former are now taking nearly a pint of syrup a night. From a Stewarton I have a magnificent super; but as far as my experience goes, and that extends to thirty-six years, it is the worst year I ever knew, and the cause I cannot make out, as we have had no great quantity of rain, and fine weather during the flowering of the beans, white clover, and limes, and any amount of honey-dew.'—J. C.

In answer to your question, how I can account for my Stewarton hive doing so well, while the other hives yielded me nothing? Hitherto I had been trying to work Stewarton with two stock-boxes, but not succeeding I last year put two swarms into the two boxes, and when they had, as I thought, filled them, I put the third box underneath, which completed the hive. Shortly after, I put the honey-box on, but they never made any comb in it, so I left it on all winter and took it off in the spring; I found also that they had made but little comb in the bottom box. This year the comb which appears to have been entirely devoted to breeding, touches the floor-board, and the quantity of bees bred were Legion, in fact twice as numerous as any other hive I have: which I think at once accounts for my splendid box of honey, but at the same time I think there is another cause for their doing so well; the honey box acting as a ventilator, and so allowing the escape of all moisture. Some years ago, I took the cork out of some straw hives in the autumn, placing a tumbler over, fitting on to a rim of zinc, and if I remember right, seven out of eight hives so done were stronger than any of the other hives I had. Though I have often succeeded in getting magnificent glasses from straw hives when I have used guide-comb, I have found it is only to be done when there is a great glut of honey, so that it must be done quickly, for owing to the concentration of the heat at the top of the hive, the queen is induced to pass into the glass, and then the consequence is brood-comb, and particularly that of drones. After thirty-six years, and trying many experiments, I confess I am but a novice in bee management, for I have never succeeded in getting a legitimate glass of honey exceeding above thirty-five pounds, and I have my doubts as to exhibition of that in bar-hives, bars are easily *transplanted*. I once had seven swarms knit together, which I put into three hives, but I had no easy task finding three queens and then dividing the bees equally.'—J. C.

Odiham, Hampshire.—'I have to thank you for the things sent with the bees. I did not make a bee demonstration at the Odiham and District Horticultural

Society's Show, but the display contributed by you and other friends attracted a great share of attention, and easily brought me into contact with several of the nobility, and great numbers of our local gentry, to whom I explained the uses of your various contrivances, and distributed the Schedules and prospectuses of the Association. I was congratulated on my attempt to open up a source of industry and amusement in which all may share; and whoever lives to see the next Show will doubtless witness the result of our united efforts, in seeing a fine display of bees and bee-gear; and instead of a few old straw hives partly filled, from which the poor bees have been taken by the *brimstone match*, some strong stocks under manipulation. I can only repeat my thanks for the loan of what you sent.'—W. H.

Somerset.—'I am glad to find that there is some probability of a County Association being formed for Somerset. Mr. Poole, of Uphill, has called a meeting of bee-keepers, to be held at Weston-super-Mare in November. I shall be glad to see it at work, for the ignorance on apicultural matters in this neighbourhood is most lamentable, as well as amusing. I was talking to a respectable country woman a few days ago about the necessity of feeding her bees, and advised her to follow your plan in preparing syrup. With all the innocence imaginable, she replied, "Salt is a capital thing to feed bees with." I tried to show her that although salt might be useful to our little friends occasionally, it would puzzle them to extract honey from it; but I verily believe she will try her plan, and think I advocated a useless expenditure of money. A young lady who has long kept bees told me recently that she had heard that no bees did so well as those which were stolen. There is, as I explained, very probably a grain of truth behind all these local errors, if one only has time to turn them over. For instance, the man who would risk his reputation and his liberty in order to obtain a stock would, if he kept them, probably also take good care of them. I have met with several cases of starvation already: I have found immediate joining and feeding absolutely necessary in a number of other instances.'—Tauntonian.

Dorset.—'The destruction of fruit by bees has been much discussed here during the past month, and those who were not over fond of the honey-gatherers before are saying all manner of things against them now. But when the dull season has passed over, the London newspapers will cease to spread the scandal. The bees will outlive it, and will make amends next year for any little shortcomings which the past season has forced upon them. I wish the *Journal* was more extensively read in Dorset, as there is ample room for improvement in apicultural matters. Farmers and cottagers cling to the old straw skep, and the older they are the better they seem to like them. An owner of considerable property, some of whose hives were almost rotten, told me a few days ago that bees like old skeps best: and as to wooden hives—well, he did not see the need for any such outlay.'—Novice.

Suffolk Street, Dublin.—'From my experience this year I have come to the conclusion never again to venture a new queen in a hive that is not well stored with brood. Last year and previous seasons all the hives manipulated had plenty of brood in them, and my failures were very few, and those the results of carelessness, while this year they amount to 25 per cent.'—E. Walpole, Jun.

Thirsk.—'I was very much interested in your Exhibition at Stamford, and am very glad I went to it. I have since transferred successfully one of my hives from a *straw* skep into one of the bar-frame hives, such as I saw at Stamford.'—E. M.

Yarmouth House, Worthing, Sussex, Sept. 27th, 1875.—'Can you (or any of your correspondents) inform me as to what is the relative proportion of weight contained in the ordinary wax-combs of the honey-bee and the honey contained in it?'—Arthur T. Webb.

Octagon Super.—'Judges at shows are not to be envied, but a man in the right is stronger than multitudes.'

Rybridgend, Ayrshire.—'I have just got my twenty hives from the heather (Arran), they have done very little: the hives were very fine ones.'

Fenwick, Ayrshire.—'We have had a very poor season in this quarter, but don't need to feed much. We must just hope for better things next year.'

Henfield, Sussex.—'It has been a bad season with the cottagers about here; one who has kept bees all her life told me the other day that she had only half a pound of honey from four stocks.'

North Walsham.—'I cannot tell you how much I enjoyed the Palace Show, and making the acquaintance of so many apiarians. I learned much then that books could not teach me, and hope next season to profit by it.'

Llangoedmere, near Cardigan.—'The season has been a very variable one down in these parts, some having done very well, whilst others have had the worst summer known for many years past.'

NOTICES TO CORRESPONDENTS & INQUIRERS.

An Exhibitor.—Your letter being anonymous, and containing damaging assertions in the form of questions, cannot be published. The Judges had not catalogues with them when judging, nor did they award themselves prizes. The other information desired it is not in our power to give.

A Lover of Fair Dealing should remember that Mr. Cowan's grand exhibit of 6 cwt. of super honey was disqualified last year because the Judges could not taste it; a few ¾-inch screws thus depriving the exhibitor of prizes he was otherwise entitled to. A 'Fox's Super,' from a straw hive, then took first honours, and Mr. Cowan accepted the Judges' award without a murmur. We cannot give the Judges' reasons for the disqualification nor supply the names of the Judges, as they arranged among themselves who should judge certain exhibit numbers, odd and even, and so on, and it is, perhaps, quite as well that personal distinctions in such cases should be impossible.

Remove the emptied supers by all means, and place them away in the dry, that the combs may be preserved from mouldiness and wax-moth. The carrying of pollen generally induces breeding, but the work of one day or even two, cannot be supposed to influence the stocks in a great degree. The lath applied to the bottom of the comb, when transferring is only a temporary arrangement, as both lath and tapes are removed as soon as the comb is sound in its frame.

Alphington.—The fumes of turpentine cause death to wasps, and we should think it would be equally fatal to bees if in large doses.

Crawley, Sussex.—The subscription of 10*s.* 6*d.* per year entitles the subscriber to replies per post to all queries, accompanied by stamped directed envelopes. Six shillings per annum ensures the delivery of the *Journal*, and replies through its columns when required. It often happens that one reply, coming at the right moment, is of more value than twenty times the difference in the amount of subscription.

A Correspondent asks:—Can you inform me what English publishers supply the American *Bee Journal*, *Bee-keeper's Magazine*, *Bee World*, and *Gleanings in Bee-Culture*, and the French *L'Apicolteur?* I should like to take them. Please also say price of each in England. Is the Prize Essay to be published?

Communications from—A Lanarkshire Bee-keeper; J. S. Wood, Nyborg; J. H., Vale of York; A Country Doctor; J. S., Arbroath; S. F. C.; Tauntonian; H. Jenner-Fust; T. F. C.; are in type, but, from want of space, are reluctantly postponed.

BRITISH BEE-KEEPERS' ASSOCIATION.

The first meeting of the Committee for 1875-6 took place on the 11th ultimo, at Ashley's Hotel, Covent Garden, and there were present F. R. Jackson, Esq., in the chair; Messrs. Hughes, Henderson, Glennie, Bose, Edwards, Hunter, Hooker, Neighbour, Atlee, Cheshire, the Rev. J. G. H. Hill, the Treasurer, and the Secretary.

The minutes of former meetings were read and confirmed; the Secretary handed to the Treasurer a cheque for 25*l.*, the donation promised by the Crystal Palace Company to the funds of the Association.

The Secretary brought to the notice of the meeting that certain medals were required; and it was agreed, on the motion of Mr. Abbott, seconded by Mr. Hughes, 'That seven silver and sixteen bronze medals (the number awarded) be ordered with suitable cases and engraving.' The seventh medal was ordered in consequence of the following resolution by Mr. Hooker, proposed in his temporary absence by Mr. Hunter, and seconded by Mr. Edwards, 'That this meeting deeply regrets the decision of the Judges in disqualifying the magnificent super exhibited by G. Fox, Esq., and the position in which that gentleman is placed thereby. That the Committee were not consulted in the matter, and are of opinion there was no sufficient ground for doubting the word and written statement of a gentleman whose honour and integrity are beyond all suspicion. That they are desirous of giving to G. Fox, Esq., an assurance of their sympathy and esteem, and in acknowledgment of his great skill as a bee-master, they award the silver medal of the Society for the super exhibited by him at the Crystal Palace Show of 1875.'

This produced considerable discussion, and although great sympathy with Mr. Fox was manifested, several gentlemen thought the resolution gave a back-handed slap to the Judges, but the intention to do so being disclaimed, the majority voted in its favour.

A letter was read from Mr. Lighton, whose exhibits in Classes 8 and 12 (although the best in his opinion) received no prize, asking the reason, and requesting to be furnished with the names of the Judges. Mr. Hunter proposed, 'That the Committee could see no reason to question the award of the Judges in this case, and referred Mr. Lighton to the Catalogue of awards,' &c., which was carried.

A letter was read from Mr. Desborough, inquiring when the MS. lecture for which 5*l.* had been awarded, would be published. This brought on an animated discussion as to its merits, and again the Judges' decision was rendered nugatory. It appeared that no one but the late Secretary and the Judge had read or seen the lecture, and its delivery having been determined on, the Secretary proceeded to read it, but on the motion of Mr. Cheshire, 'That the Committee regret the MS. lecture to which the prize was awarded, is not, in their opinion, of sufficient merit to be printed,' the reading was stopped and the lecture condemned.

Mr. Hughes proposed that the thanks of the Committee be given to Mr. J. S. Wood of Denmark, for the trouble and expense he had incurred in sending his interesting exhibits to the Show. Mr. Abbott, while quite willing to endorse this proposition, thought Mr. Hunter was also entitled to the thanks of the Committee for the highly useful and instructive exhibits he had imported from America at so great personal trouble and expense, which were tacitly agreed to.

Mr. Hunter then called attention to the number of things which had been stolen, or taken by mistake, from the exhibition tables and elsewhere at the Crystal Palace; instancing particularly as a thing that could not be reproduced, a manuscript book with red covers which contained Mr. Cowan's apiarian notes for some years past; and it was hoped, as such a document could be of no possible use to any one but its owner, that it would be returned to him.

Mr. Hunter produced his accounts, which were handed to the Secretary, from which it appeared that after paying the prize monies, &c. there was a balance in favour of the Association of about 65*l.* subject to the payment of the cost of the prize medals.

The Secretary then applied for a cheque for petty cash purposes, and was voted 10*l.* Mr. Hunter then referred to a proposal that the Committee meet every month at stated times, and that members of the Association be allowed to be present, and that after each such meeting a *Conversazione* be held, papers read, and new inventions exhibited; and on the motion of the Rev. J. G. Hill, seconded by Mr. Hooker, the Secretary was empowered to advertise for, and engage, suitable rooms for the purpose; and after the usual vote of thanks to the Chairman, the meeting dissolved.

THE CALEDONIAN APIARIAN SOCIETY.

Minute of Meeting held in M'Innes' Hotel, Glasgow, on the 20th October, 1875:—The minutes of last meeting having been read and approved, an animated discussion arose as to the continuing of the Society. The Vice-president said they had great cause to be thankful for the success that had attended their efforts for 1875, although they had not received the hearty co-operation from Scottish bee-keepers which they expected at the formation of the Society. Many causes might be assigned for that, and among them, perhaps, the want of knowledge of the Society's very existence. As they would see by the balance-sheet the ordinary members number less than 100, with one life-member; and although the subscriptions to the Prize Fund did not actually leave them free of debt, the sum is so insignificantly small that it will be easily thrown off, perhaps before this meeting close. He had, therefore, very much pleasure in proposing the Society continue its efforts for 1876.

Mr. Sword, of Falkirk, begged to second the Vice-president's proposition; and in doing so, said we had cause to be thankful that they had such enthusiasts as Messrs. Bennett, Wilkie, and Thomson among them, as they had that indomitable perseverance in their composition that would carry them through any good work which imparted happiness to others.

Mr. Wilkie proposed the second resolution. 'That the members present constitute themselves into an acting Committee so as to reach every town and hamlet throughout broad Scotland, and bring the result of their labours up at the next quarterly meeting.' Seconded by Mr. Thomson, who said 'each' member should be supplied with a small cheque-book so as to enrol members. It was all very well to be told "we take an interest in the Society," but the true way to prove that was to become members.'

The 'Lanarkshire Bee-keeper' showed some tests to detect sugar in the comb from honey-comb, and the change which takes place in sugar in passing through the bees. The tests were much admired, and a vote of thanks was duly accorded to him.

Mr. Bennett announced that he had a communication from Colonel Campbell of Blythswood, who is willing to become the President for 1876, also a very kind note from a Southern apiarian subscribing 3*l.* for 1876; he had also received promises of subscriptions from other gentlemen. A vote of thanks was awarded to the Vice-president, &c., and the meeting dispersed.

The officers of the Association are:—President, Colonel Campbell of Blythswood; Vice-presidents, R. J. Bennett, Esq. of 8 Holland Place, Glasgow; John Wilkie, Esq., Alma Villa, Gourock; William Sword, Esq., Falkirk; Hon. Treasurer, Frank Gibb Dougall, Esq.; Joint Hon. Secretaries, W. Thomson and J. Henderson, Esqrs. The Committee consists of the whole of the members, 'with power to add to their number.'

OUR WANT AND SALE COLUMN.

WANTS may be advertised at 2*d.* per line of eight words, for one insertion, renewable in succeeding months, for 3 months, without alteration, for half price. Replies must contain stamped directed envelope, or they will not be forwarded.

All monies must be deposited with the Editor, who will communicate with the vendor, when, if a sale be effected, one penny in the shilling will be charged on all amounts not exceeding one pound, and one halfpenny additional will be charged on every shilling beyond that amount, and the balance forwarded to the vendor.

Should no sale take place, the money deposited will be returned to the depositor, less a uniform charge of fourpence to cover postage.

The carriage of all articles sent, except such charges as are incurred in first placing them on a railway, must be paid for by the depositor, and if not equal to the description given, the advertiser must pay the cost of their return.

The postage of small articles, such as books, must be pre-paid by the sender. The name of the town or country in which advertisers reside, and the name of their railway, should be mentioned as a guide to probable cost of carriage.

No advertisement must contain more than sixteen words. P. O. Orders to be made payable to C. N. ABBOTT, office of *British Bee Journal*, Hanwell, W., London.

No.		s.	d.
150	Wanted.—Clean new straight worker comb—J. F. Newland, Wandsworth Common.		
192	Wanted.—A large quantity of straight worker comb, Birmingham. State price, &c. to Editor.		
198	Guide-plates (4 × 1½ inches), fitted, with wooden screw-press complete, for making wax sheets	10	0
199	Mieroscopy.—Willing to exchange first-class microscopic slides, &c., for good swarms. John H. Martin, Tunbridge Road, Maidstone.		
201	A Cottage Woodbury Hive	15	0
202	An Eleven bar-frame Woodbury hive	7	6
203	Wanted.—Vol. I. of *Bee Journal*. Full price given.		
205	Wanted.—Index for Vol. I. *British Bee Journal*. State price.		
208	Unicomb, holds one frame, glass sides, for show	7	6
209	The Improved Cottage Woodbury Hive, made according to directions in *Journal*, and approved by Editor, unpainted. Lancashire	20	0
210	'A Manual of Bee-keeping,' by John Hunter. Quite new. Postage 3*d.*	1	9
211	'The Management of Bees,' by S. Bagster, 244 pages, and 40 Illustrations, also 'Practical Bee-keeping,' the two books, post free ...	5	6
212	'Full Directions for the Management of Bees to the greatest Advantage,' by the able Author, John Keys, also 'Bees: their Habits, and Treatment.' The two, post free	6	6
213	Two Float-feeders, complete, each	1	0
215	Wanted.—Numbers 5, 6, and 9 of the *British Bee Journal*; also the Index to Vol. I. Double price given if clean and in good condition.		
216	Wanted—*British Bee Journal* for Sept 1873, Oct. 1873, March, 1874, and April, 1874.		
218	Several pure Ligurian and hybrid stocks for sale, in bar-frame hives, price according to strength, &c.—Shropshire		
221	Wanted,—Stock of Pure Ligurians in exchange for Two Stocks Black Bees. Lincolnshire.		
223	Three Stocks of Bees, strong, and fair amount of Honey. Bar frames. Each	20	0
224	Two Stocks of Bees in straw skeps. One Neighbour's. Good weight. G.W.R. Each	12	6
225	Three Stocks of Hybrids in Bar-frame Hives, with moveable floor-boards, and on legs. Three windows in each hive. Will stand the winter. Leicestershire. Each	30	0
226	Four Stocks of Hybrid Bees, in Improved Cottage Woodbury Hives. Heavy enough to stand the winter. Leicestershire. Each ...	40	0
227	Stock of Pure Ligurians, queen 1875, in Woodbury hive, with stand, super, and cover, complete. Good condition. Gloucestershire ...	84	0

WANT AND SALE COLUMN—CONTINUED.

No.		s.	d.
228	Two Carr-Stewarton Body Boxes, been used, straw. Each	7	6
229	Two ditto, supers, new. Each	7	0
230	One Huber Leaf Hive, good as new	21	0
231	One pair Neighbour's Sectional Supers, new ...	5	0
232	Hunter's 'Bee Manual.' Post free	1	9
233	One Stewarton Set, new	15	0
2 34	Two Neighbour's Supers in sections. Quite new	5	0
235	Stock Pure Ligurians in straw skep, will travel	42	0
236	Home-made Hive, Quinby frames, two division boards, collateral principle, super cover and floor-board (cheap)	15	6
237	Walton's Extractor, in frame, &c. takes frames 13 by 18. Photo forwarded	55	0
239	One Stock of English Bees in a Woodbury Hive, combs all straight, just the thing for Ligurianising	42	0
240	Langstroth on the 'Hive and Honey Bee' ...	8	0
241	*British Bee Journal*, Vol. I. half-morocco ...	21	0
242	Six Float Feeders, each 1s. and Ten Pint Feeding Bottles, 4*d.* each.		
243	Several strong stocks of Black Bees, in flat top straw from 15*s.* to 21*s.* each. Lincolnshire.		
244	Wanted.—Strong, healthy skeps of Black Bees. Weight no object, if full of bees and plenty of comb.		
245	Wanted.—No. 13, for May, 1874, of *British Bee Journal*. 1*s.* given.		
246	Honey.—About 40 lbs. of purest drained nectar, from supers from the apple orchards of Herefordshire, in white jars of about 2 lbs. each, at 2*s.* per lb.		
247	Honey.—A few glass jars of splendid Honey and Comb from Devonshire supers. Very choice. Per lb. 2*s.* Glasses, 1*s.* each, may be returned.		
248	For Sale.—Starling's new 4*l.* Honey Extractor. 70*s.* will be accepted.*		

* The advertiser will greatly oblige by forwarding his address, which has been mislaid

MELILOT CLOVER PLANTS will grow from 8 to 12 feet high next season; and if a little seed be sown when they are replanted a crop of the Flowering Clover will be obtained every year. Plants with seed 5*s.* per doz.—F. P., Office of *British Bee Journal*, Hanwell, W.

BARLEY SUGAR.—Those who cannot succeed in making this desirable bee-food can obtain it of CHARLES THOMAS, Office of *British Bee Journal*, Hanwell, W.

EXPERT ASSISTANCE.—JAMES ABBOTT, and FRANK, the Editor's Assistants, offer their services in any kind of Autumn Bee Work.

Please address, J. A. ABBOTT, Hanwell, W.

The 'British Bee-keeper's' Microscope.

A useful and popular Instrument, well adapted for all Microscopic purposes.

It consists of a firm Stand, with Brass Uprights, coarse and fine Adjustments to the Body; ¼-inch Achromatic Object Glass, dividing to ⅛ and 1-inch; Stand Condenser for opaque objects; Diaphragm; Life-box; Stage and Dissecting Forceps. Complete, in Mahogany Cabinet, £3 10*s.*

Brass Stand Microscope, of similar construction to the above, two Eye-pieces of different powers; ¼-inch Achromatic Object Glass, dividing to ⅛ and 1-inch; also a 1-inch wide Angle Object Glass, for large objects: Stand Condenser; Diaphragm; Stage and Dissecting Forceps. Complete, in Mahogany Cabinet, £4 4*s.*

Binocular Bodies, with Rack Adjustments, adapted to the above, extra.

Polariscope, and other apparatus, can also be fitted.

J. W. DEACON, Optician, High Street, Sydenham

THE

British Bee Journal,

AND BEE-KEEPER'S ADVISER.

[No. 32. Vol. III.] DECEMBER, 1875. [Published Monthly.]

Editorial, Notices, &c.

DECEMBER.

Having from time to time given directions which, if carried out, would ensure the safe wintering of bees, we know of nothing save accident and unpreventable disease that will be likely to interfere with their well-being. We must, nevertheless, reiterate for the benefit of our new readers, that the time for feeding with syrup has passed; and that when food is necessary, barley-sugar only should be used. During the winter months bees should be left undisturbed, and except that a little attention should be paid to the entrances to the hives and care taken that they shall not become barred either by dead bees or *débris* from within, or any foreign matter from without. Take care also to prevent the sun's rays from shining into the entrances; but on all occasions give the hives themselves the full benefit of their fitful gleams. They will seldom be sufficiently powerful during winter to do more than aid in drying the hives, and every exposure by the removal of the hive's covering will be beneficial, inasmuch as it will enable the bee-keeper to detect and destroy the insects and enemies which may have effected a lodgment therein. The chief, nay, the only unpreventable disease from which the bees will be likely to suffer is foul-brood; and at this particular period it is seldom its presence can be discovered, as the putrid filth in the diseased cells will in most instances have dried up, and not until breeding has again commenced will it become apparent. Hives afflicted with this disease have hitherto been held to be incurable, and the best authorities have counselled their destruction; but recent discoveries in Germany have shown a way out of the difficulty, and to the facile pen of J. Wood, Esq. of Denmark, we are indebted for a full translation and description of the means and method adopted in its cure. (Vide pp. 155, 156.)

The preventable disease *dysentery* will be as merciless during the winter as ever it has been when the means of prevention have been neglected; and should it make its appearance we cannot suggest a better remedy than that which is afforded by warming the bees and the hive artificially, and giving them an opportunity for flight in confinement. It can do no harm to repeat here that dysentery is a disease which only shows itself during bees' confinement to the hive; it is caused by their partaking of improper food, or by their having been obliged to consume inordinately to enable them to generate sufficient heat to keep life in their cluster, and, from stress of weather, having no opportunity for an out-door flight to relieve their distended bowels. It is a singular fact that bees suffering from dysenteric distention cannot discharge themselves unless on the wing; they may, and do burst, and die in their hives by hundreds, and many creep out in their distress and attempt to fly, but fall to the ground at a few feet distance and perish. On page 111 of Vol. I. of the *British Bee Journal* first loomed the idea which has led to the American system now in common use of applying artificial heat to bees in confinement, not for the cure of diseases only, but for the promotion of early breeding and the raising of drones from selected queens, and young queens to mate with them.

Cure of Dysentery.—*An airing court for the bees.*—In all cases of dysentery relief to the distressed bees is of first importance, and can easily be achieved by giving them space in which they can fly without becoming lost or chilled; and this is best effected in the following way. Procure sufficient in length of white 'mosquito' net to go loosely round the front of the hive—say 1½ yards,—sew it into the form of a bottomless bag, and make a hem in one end, into which run strong tape for strings, and at two feet from the other end sew a wooden hoop of about 16 inches diameter. Close the entrance of the affected hive with a bit of rag, carry it into a warm room or greenhouse, fix the hemmed end of the bag round the hive so that not a bee can escape, draw the rag from the entrance and carry the hoop to its farthest limit and tie the loose net at the end as one would tie a sack, leaving a long end to the string to tie to some other object and keep the 'airing court' extended. The net with which this airing court should be made

varies from 7 to 9 feet in width, and costs from 14 to 16 pence per yard in length, and is very strong, so that for about two shillings the apparatus may be made complete.

An appliance of this kind should form part of the gear in every apiary, as it will be most useful in cases where it may seem necessary during severe frost, to administer relief to benumbed stocks which having consumed their stores on one side of their hive are unable to get across the combs to the other. (See p. 125, Vol. I.) This appliance should be used in a warm room or green-house, and so long as daylight lasts the bees will fly in it and will take the opportunity of throwing out their dead and the *débris* of their hives, and when darkness comes on will return within doors. Should any not do so, the hoop end of the net should be raised and the bees shaken towards the hive, or driven in with smoke. Stragglers should be placed in a bottle, which should be inverted over the feeding-hole of the hive.

The weather seems now to have set in cold, and frost and snow will presently be having a little game of their own. We must not forget that last year at this season (Dec. 16) we were visited by a frost, the continued severity of which had not been paralleled for many years, and, believing a repetition possible, would caution our readers against neglecting the precautions necessary in such circumstances. Narrow the entrances of hives, take care that the ventilation through the quilt shall be unimpeded, and ensure free ventilation above it; protect the hives and floor-boards from drifting snow and rain, and render them incapable of toppling over from the effect of storms; and, if the stocks have been prepared for winter as we have recommended, and attention paid to the hive-entrances to see that they do not get choked, the storm may rage and the frost may rule, but the bees will be snug in their comfortable quarters.

ABBOTT'S PRIZE MEDAL HIVE OF 1875.

In fulfilling our promise to show how to make the bar-frame hive for which the highest honours were awarded at the late Crystal Palace Show, we would again caution our readers against pinning their faith to its size, for nothing can well be more delusive than the belief that the same sized hive will suit all localities alike. If reference be made to the engraving (p. 132) it will be observed that the upper parts of the legs of the hive are imbedded within its front and back walls, and it will be manifest that this arrangement gives greater facilities for fixing the runners upon which the floor-board slides than any other, besides lessening the width of the floor-board itself. When the legs are put outside such a hive, the floor-board must be 19 inches wide to reach the legs and runners on which it is to rest; but by the present arrangement the floor-board need not have a greater width than 15½ inches, thus avoiding a useless bee-crushing surface of about 64 square inches and preventing the harbour for insects which the large proximate surfaces of the hive and floor-board would afford. The formation of the legs of the hive to make them splay, that is, stand wide apart on the ground, to give stability to the hive against the winds and yet to afford stability, and firm-nailing at the hive's corners, was at first a puzzle; and originally we were content to increase the width of the legs by fixing wedge-shaped pieces on their outside surfaces, as in the Cottage Woodbury; and although this method answered fairly well, it did not give the solid appearance desired, and therefore the following was adopted, which we will call—

Making the Legs. Take four pieces of yellow deal, each 19 inches long, 2½ inches wide, and 1½ inches thick; cut a wedge-shaped piece from the top end of each 2½ inches wide, and 9 inches long exact, as per dotted lines in fig. 1, A A, and fix it temporarily with two screws on to the opposite side of the leg from which it was cut, but in such a way as to increase the length of the leg by three inches, which will allow of the necessary splay to the lower part of the leg, and leave a clear 9 inches of perpendicular height on the outside A, and a depth of 12 inches from the top of the wedge to the bottom on the inside whence A was taken. Treat all four of the legs in a similar way, and they will be ready for receiving the outside boards which will fix them in the positions they will respectively occupy in the front and back walls of the hive. The sizes of the boards will, of course, depend upon the size the hive is to be, and may be varied accordingly; but for the purpose of description we will adhere to the prize hive, in which the outside boards for front and back should be 18½ inches long, 9 inches wide, and half an inch thick, cut perfectly true and square, and should be fixed either with 1¼-inch nails or inch screws to the back of the legs B, the ends being fair and even with the (legs)

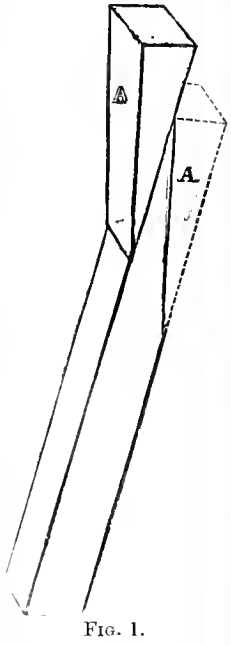


Fig. 1.

outsides, as at A, fig. 2. The inside board should be also 18½ inches long, 9 inches deep,

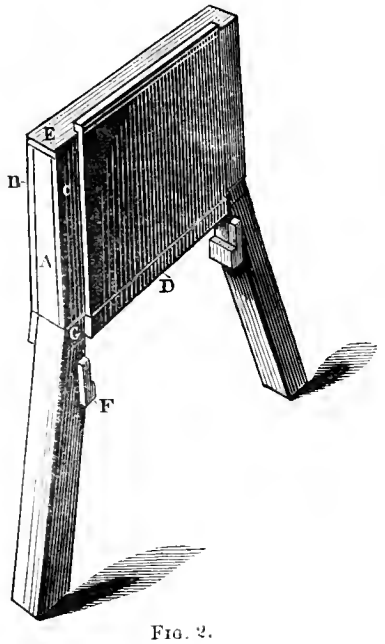


Fig. 2.

and half an inch thick; but 1¾ inches of each end should be reduced to half thickness to form the shoulder at C, fig. 2, against which the moveable side D, shall fit when closed.

Prior to fixing the board C, fig. 2, to A, the upper parts of the legs have to be reduced, the pieces taken off being wedge-shaped half an inch wide at A, fig. 3, and tapering to nothing at G,

Fig. 3.

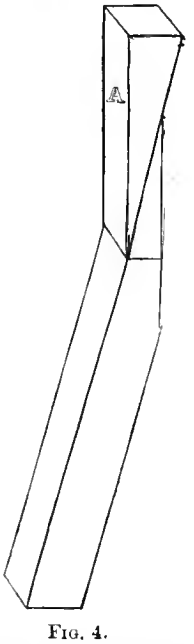


Fig. 4.

which will cause these walls of the hive to be half an inch thicker at the bottom than at the top when the inner boards are nailed on. Before doing this, however, it will be well to strengthen the legs with additional screws both ways through A, fig. 4, which was only temporarily fixed, because we found a difficulty in describing how nails should be put in so as to be out of the way while the upper faces of the legs were being reduced at E, G, fig. 2. The inside boards may now be put on and should be well bradded to the legs, the brads being of about 1¼ inch length and driven at all sorts of angles through the parts C, fig. 2, to prevent the possibility of warping.

To give the hive *shape* and render after-directions more easy to follow, the outer side walls should now be nailed on, and, these being 9 inches wide, half an inch thick, and *about* * 21 inches long, and nicely squared, should be fixed to the back and front so as to be even and corresponding with A, B, C, fig. 2, at all corners, and leaves the front and back exactly 17 inches apart at the top, and 16 at the bottom, tapering as shown.

The hive will now stand on its four legs, and requires a rim round the bottom of its walls, the pieces forming which will for the sides be 2¼ inches wide, 1 inch thick, and 16½ inches long, to fit between its front and back legs, as at G, fig. 2, touching closely both C and D. The front and back rim pieces will require to be 2½ inches wide, and 19 inches long, cut of the shape shown in fig. 5, to fit exactly; that for the front

Fig. 5.

will, however, require the entrance cut out of it, which may be nearly one half the width of the hive, say eight inches, so that sliding shutters may be fitted which will close it, or lie one on either side out of the way of the bees.

The conclusion of this article must be deferred till next month.

STANDARD FRAME FOR ENGLAND.

Now that hive-making for 1876 is about to commence, it has occurred to us that it would be an excellent opportunity for determining on a standard frame for the future hives of the United Kingdom. The British Bee-keepers' Association could do this admirably by simply

* At this point the amateur may determine on any alteration of length of hive from front to rear that may accord with his existing frames, or suit his ideas of hive capacity. The hive is intended for ten frames, a number commonly used, but great license is permissible therein. It would be a great boon, however, if a size of frame could be adopted which should be generally recognised as the standard for the United Kingdom.

offering their prizes for 1876 for hives containing frames of the size they choose to adopt. The pressure thus brought to bear would be perfectly legitimate, as it would be the work, after much experience and careful thought, of some of the most advanced bee-keepers of the day, and the benefit accruing would be incalculable.

One of the most prominent advantages would be the interchangeability of all frames, but the chief would be in determining the size of the honey-extractor. At present there are proposals that every district should have its extractor for general use, as it has its mowing or reaping machine; but to render it effective it must be clumsily large, or it will not take some of the frames, or if smaller it will be partially useless for the same reason.

There are many other advantages to be gained by the adoption of a standard frame, which need no mention here, but will suggest themselves; and as there can be no hardship in the matter, we intend to propose at the next meeting of the British Bee-keepers' Association:—

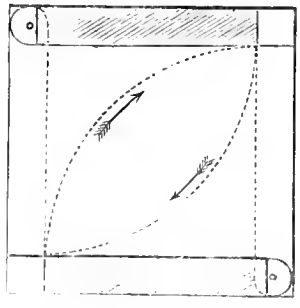
'That, considering the difficulties which arise through the variation in the sizes of the frames in the hives of different makers, this Committee, on behalf of the Association, determine that at all future exhibitions under their control, or in which they may take any part, they will recognise only such hives in competition for improvements as shall contain frames of a size to be now determined on; viz., the outside dimensions from top of frame to the bottom, whether it contain a bottom rail or not, shall be —— inches, the frame shall be —— inches wide at underside of top rail, and —— inches wide at bottom, whether it contain a bottom rail or not.'

The thickness and width of the material, and the shape and length of top rail, will not be interfered with in this resolution, which will open the question thoroughly, and, we trust, lead to a good result. In the meantime we would ask all who take an interest in the movement to send us their opinions at their early convenience, so that we may be prepared for the next meeting of the committee of the Association.

MR. COWAN'S EXTRACTOR—'THE RAPID.'

At this season of the year little need be said in favour of the use of extractors, and we shall therefore be content with describing that which took first honours at the late Crystal Palace Show. The exterior is similar in shape to Mr. Walton's (p. 66, August No.); but instead of the strap-motion, it is driven by cog-wheels on the upper surface of the cylinder. The interior arrangement is, however, different to any other extant. Instead of the revolver moving on a central shaft, it has a cross-bar at top and bottom, in the centre of which are pivots, the lower of which works in a thimble at the bottom of the can; while to the upper one is attached the smaller of the geared-wheels, working through a central hole, in a cross-bar, fitted to the top of the can.

For the reception of the combs, two cages are provided, which are hinged at opposite



angles, as shown in sketch, the intention being that, when the combs have been placed in the cages, either side can be slung by turning them on their hinges, as indicated by the arrows and dotted curves. This arrangement is exceedingly ingenious, and not likely to get out of order; but the usefulness of the machine is somewhat cramped by the waste of space at the corners of the revolver. As will be seen in the engraving the cages to contain the frames of comb are made narrower than the revolver, so as to permit them to clear each other at their outer ends. The can measures 20 inches in height, and is 17 inches in diameter. The revolver is $10\frac{3}{4}$ inches square and about 14 in height; the cages are each $8\frac{1}{2}$ inches wide, and of the same depth as the revolver. But, of course, these dimensions can be varied to suit the taste of would-be purchasers. The machine is of iron throughout, is dished at bottom, has a treacle-valve to allow honey to be drawn off at pleasure, is well galvanized, and with ordinary care will last a lifetime.

COUNTY ASSOCIATIONS.

Our readers will be glad to learn that the County movement is progressing.

Lincolnshire has now an Association, with the Rev. D. W. Pennell, of Grantham, for hon. sec.

Devon and Exeter are enrolled, under the presidency of S. Bevan Fox, Esq., a bee-keeper of world-famed repute, and with W. N. Griffin, Esq., of Alphington, as hon. sec.

Somerset.—O. Poole, Esq., of Uphill, Weston-super-Mare, is working vigorously in the formation of an Association, and has just sent in a report.

Liverpool.—William Watkin, Esq., of Roby, is the volunteer hon. sec., and is anxious for work. No report.

Yorkshire.—J. G. Kirsten, Esq., of Bridlington, Yorkshire, is willing to work, but the state of his health has caused him to seek a more congenial climate, in Hamburg, for the winter months.

Dorset.—Mr. Charles Tite will work for Somerset and Dorset; his address is Wyndham Street, Yeovil.

Hereford and District.—An attempt will shortly be made to improve bee culture in this fertile district. Ten pounds' worth of bar-frame hives is to be offered to cottagers gratis, on condition that they adopt as the motto, 'Never kill a bee.'

Dundee.—The movement has spread to Scotland, and has a most energetic champion in William Raitt, Esq., of Liff, by Dundee, who is already negotiating for a Bee Show to take place in connexion with the International Fruit and Flower Show, next season, at Dundee, and is awaiting the final decision of the Committee, which we trust will be satisfactory.

In almost all the foregoing cases we have been requested to ask our readers to aid this great and useful movement, by sending to the respective secretaries lists of the addresses of bee-keepers residing in or near to the counties or districts mentioned, that they may be individually appealed to to aid in carrying out the objects for which the several Associations are being formed; and *we do sincerely beg our friends to afford all the aid possible in this direction.* It need occupy only a few minutes, but, to be well done, *it should be done quickly.*

From *Glasgow* we have received a book containing blank forms of receipt, forwarded in the hope that there may be some on this side the Tweed who remember the land 'ayont;' and should there be any desirous of supporting the Caledonian Apiarian and Entomological Society, we shall be glad to forward receipts for their donations or subscriptions. Lists of addresses of Scottish bee-keepers should be sent to R. J. Bennett, Esq., 8 Holland Place, Glasgow.

The vitality of apiculture is shown in a remarkable degree in the formation of these Associations at the dead end of a year unparalleled for failure and disaster; but, on the other hand, no year has ever so much proved the necessity for them. The terrible destruction of bee-life through the ignorance of bee-keepers—allowing them, in the one instance, to die of positive starvation, and, in the other, leading to their wholesale slaughter—*as a matter of duty* calls loudly for the establishment of educational centres in all parts of the kingdom, and we earnestly hope that the efforts now being made will meet with the support they deserve. Every reader of this *Journal* can do something, and *at least* we hope they will furnish the several secretaries with long lists of bee-keepers' addresses. Money furnishes 'the sinews of war,' but 'the pen is mightier than the sword.' Let us attack the stronghold of ignorance in its home, and while sympathising with poor bee-keepers in their losses, endeavour to show them a better system of management; the lesson of this year has been a hard one, but if it has taught them the necessity for bee *culture*, it will after all have been but a blessing in disguise.

When the larva of the bee has attained its full growth, and the cell is sealed over or capped by the workers, it spins its cocoon, and assumes the proper or nymph state, preparatory to its final metamorphosis. The worker and drone larvæ spin an entire cocoon, that is, one in which the pupa is entirely enveloped. The queen, on the other hand, spins one enveloping only the head and thorax, leaving almost the entire abdomen bare and unprotected. When the insect is matured it emerges from the cell, leaving its cocoon attached to the base and side-walls of the cells.

In some exceptional cases a few drones will be retained over winter in populous hives having a fertile queen.

Queens may attain the age of five or six years, but usually they die in the third or fourth year.

He who with health should live at ease
Should cultivate both fruit and bees.

HINTS TO CORRESPONDENTS.

Whatever you have to say, my friends,
Whether witty, or grave, or gay,
Condense as much as ever you can,
And say it the readiest way;
And whether you write of rural affairs,
Or of matters and things in town,
Just take a word of friendly advice—
Boil it down.

For, if you go spluttering over a page
When a couple of lines would do,
Your butter is spread so much, you see,
That the bread looks plainly through;
So when you have a story to tell
And would like a little renown,
To make quite sure of your wish, my friend,
Boil it down.

When writing an article for the press,
Whether prose or verse, just try
To settle your thoughts in the fewest words,
And let them be crisp and dry;
And, when it is finished, and you suppose
It is done exactly brown,
Just look it over again, and then
Boil it down.

For editors do not like to print
An article lazily long,
And the general reader does not care
For a couple of yards of song;
So gather your wits in the smallest space,
And, if you would gain renown,—
Well, every time you write, my friend,
Boil it down.—ANON.

Correspondence.

*** *These columns are open to Subscribers, so that their queries, replies, correspondence, and experiences, may be* fully *and* faithfully *recorded; and for the discussion of all theories and systems in Bee-culture, and of the relative merits of all hives and appurtenances, that the truth regarding them may be ascertained. The Editor, therefore, must not be expected to coincide with all the views expressed by the various writers. All Correspondence is addressed to the Editor.*

JUDGES' AWARDS.

I see that the Committee of the British Bee Association award a silver medal to G. Fox, Esq., for a super disqualified by the deliberate opinion of the Judges. As 'it is never too late to mend,' I hope the Committee will reconsider the case of Mr. Cowan's magnificent supers of last year, and award him a medal also. His were disqualified by the quibble of a few screws only, and by no adverse opinion at all. But why appoint Judges if we are not to abide by their decision? If the sentences are liable to revision they are practically useless. Such a system must lead to endless confusion, and will end in breaking up the Association. Can you kindly insert these few lines in your next issue and oblige one of your—SUBSCRIBERS?

MR. FOX'S SUPER.

The action taken by the Committee in the matter of Mr. Fox and his super has surprised me exceedingly, and I as one of the Judges regret very much that I consented to act in that capacity. After having invited gentlemen to come to London at their own expense and officiate as Judges at the annual Show, to pass upon them such a vote of censure as is embodied in the resolution published by you in the *British Bee Journal* for this month, shows that although the Committee as a body may be men of sense and possess the feelings of gentlemen, there are some amongst them who are devoid of both qualifications, and who having been disappointed in the position assigned to their own exhibits, are not able to bear their disappointments in the very commendable spirit shown by the Hon. and Rev. H. Bligh, but must needs vent their spleen by insulting the Judges.

I speak thus plainly because I feel very strongly the injustice that has been done to us without our having the opportunity of defending ourselves. The Committee say that 'they were not consulted.' That Judges at any shows are expected to consult the Committee before giving their decisions is something very new to me; and I venture to say that had the Committee of the British Beekeepers' Association intimated to the gentlemen who officiated at the Crystal Palace that such a proceeding was expected of them not one of them would have accepted the office. It was open to the Committee to ask the Judges their reasons for any particular decision; and out of courtesy they might have been given, but most assuredly they could not demand even that as a right. I cannot quite understand why an exception should have been made in the case of Mr. Fox, when I remember that last year my own unparalleled exhibit of honey obtained from one hive was passed over by the Judges; and although the case was known to the whole of the Committee, they neither passed a vote of sympathy nor awarded me a prize; and I maintain that they acted quite right in not interfering with the Judges' award, although I was the sufferer. Again this year, in Mr. Lighton's case, they refused to interfere or to furnish him with the names of the Judges who made the awards in the classes in which he exhibited. If the Committee are to rejudge the Judges, why go through the farce of soliciting gentlemen to officiate in that capacity when the Committee are so much better qualified (in their own opinion) to make the awards?

As to the grounds upon which Mr. Fox's super was disqualified, I as an individual judge do not feel at liberty to make a statement; but I do fearlessly assert that there were good and sufficient reasons why it should have been set aside, despite the resolution of the Committee to the contrary; and as so much is made of Mr. Fox's honour and integrity, I challenge that gentleman to deny that at least one of the statements attached to his exhibit was untrue, and that he removed his super (as he calls it) at least nine days later than the date he says he did, and ask him whether or no it had been bred in to a very great extent and contained either brood or pollen when placed upon the table for exhibition. Mr. Fox made no objection to the disqualification of Mr. Cowan's exhibit last year although he profited by it, nor did the Committee award him either prize or vote. Let me remind them that Mr. Fox's super this year might have been disqualified on exactly the same grounds. We all felt sorry that Mr. Cowan did not get the prize, the more especially that he bore his disappointment like a gentleman, and, like a good cricketer, left his wicket without a word when the umpire gave him 'out.'—R. SYMINGTON, *Honeybank, Market Harborough.*

MR. FOX'S LARGE SUPER.

As the junior of the three whose judgment, in the matter of Mr. Fox's super, has practically been censured by the Committee of the British Beekeepers' Association, I beg to offer a word of remonstrance. My colleagues were both men of note and experience, and it was their decided opinion that the bees bred in the hive exhibited could not have filled the super with pure honey gathered by them during the past season. In this opinion I (though a novice, and, of course, my judgment would be valued little in comparison of theirs) fully concurred. There was a mystery which we could not solve, and to which no clue was afforded by the description accompanying the exhibit, but we felt we could not give the prize to this super, as fulfilling the conditions required. Since the time of the Show I have received information which proves that we were right, that bees were bred in the super; but of this there was no outward evidence, and he had omitted all mention of the fact in the description of management.

Had this been stated, Mr. Fox would probably have obtained one of the five prizes which were offered, though, perhaps, not the first, as a super which has been used for nursery purposes is decidedly blemished thereby. I hope that the Committee will hesitate before they again repudiate the Judges' decision.—HENRY BLIGH, *Vicarage, Abingdon, 20th November*, 1875.

COUNTY OR DISTRICT ASSOCIATIONS.

I am exceedingly glad to find there have been several County Associations formed, and hope the progress made, rules agreed to, &c., will be duly recorded in the *Journal*, so that we may all reap the benefit thereof. Probably it will, for the present, at any rate, be the best plan to confine the operations of each Association to a single county; the members will then have greater facilities for thorough organization, upon which ultimate success mainly depends. If sufficient subscribers are obtained to enable each Committee to offer prizes for honey, &c., at most of the local horticultural shows, the progress of bee-keeping will be rapid. It could easily be arranged to reserve some of the best prizes for members, as this would increase the number of subscribers to the funds, and sharpen the competition.

Mr. O. Poole, of Uphill, the honorary secretary for Somerset, has suggested that each county or district Committee should be backed up by a number of local Committees, and the idea is an excellent one. If the general management is confided to the most influential and enthusiastic bee-keepers of the neighbourhood, each of those ladies or gentlemen would, after a time, be able to organize and direct a small sub-committee in her or his own district, and thus complete the net-work of organization. Provided the interest of some bee-keeper, residing in each of the principal towns and villages of a given district, could be secured, it might be possible to arrange for the regular collection of small subscriptions from artisans and labourers (in return for which stocks, hives, &c., could be supplied), to circulate the *Journal* and standard bee-books regularly and systematically, and to appoint the most skilful members to give advice and assistance in all cases of doubt or difficulty.

If the movement is to succeed, however, members must not be content merely to enter their names and pay their subscriptions, they must be prepared to use their personal influence in securing subscribers, and spreading a knowledge of the improved methods of bee-keeping. This can be done in a variety of ways —by lending copies of the *Journal*, or good books on apiculture; by circulating the Crystal Palace Leaflets; by occasional letters to local newspapers; and by speaking a word in season to cottagers, farmers, and others, who keep bees, or who have good opportunities for so doing.

Before finally deciding on their rules, Committees would do well to consult the first volume of the *Journal*, where they will find copies of the regulations drawn up for the proposed Bee-Keepers' Guild, the Danish Society of Apiculture, the Buxton, Dawlish, and other clubs, from which many useful hints may be taken.—C. T.

COUNTY ASSOCIATION: LINCOLNSHIRE.

In the last issue of our *Bee Journal* I had the pleasure of announcing the fact that we had been successful in establishing a Bee-keepers' Association for the County of Lincoln, promising at the same time to give your readers some further information as to the rules adopted, and the names of those who had kindly undertaken the management. It gives me great satisfaction to be able to state that several influential gentlemen have consented to become vice-presidents, and with a good staff of volunteers on the General Committee, together with the Acting Committee, Treasurer, and Secretary, we number nearly fifty members, which I venture to think may be considered fair success, for our friends in Lincolnshire have not hitherto, I believe, given much attention to bee-keeping, and most of those who have, so far as I can learn, have gone upon the sad old system of suffocation. From opinions expressed, I am thoroughly convinced that the people of this great county are feeling alive to the better system of bee-keeping, and I believe there is no more sure way of bringing this about than by establishing associations and exhibitions, and therefore I beg to advise that other counties do as Lincolnshire has done.—R. R. GODFREY, *Grantham, Nov.* 25, 1875.

RULES AND REGULATIONS
OF THE
LINCOLNSHIRE BEE-KEEPERS' ASSOCIATION.

1. That the name of this Association be the 'Lincolnshire Bee-keepers' Association.'

2. That its object shall be the encouragement, improvement, and advancement of bee-culture, particularly as a means of bettering the condition of cottagers, agricultural and other labouring classes, as well as the advocacy of humanity to the industrious labourer—the honey-bee.

3. That the officers shall consist of a President, Vice-presidents, and General Committee—from whom shall be selected an acting Committee not exceeding seven—Secretary, and Treasurer, the whole of whom shall hold office for one year, and be eligible for re-election.

4. That the management of the Association shall be vested in the acting Committee, of which the Secretary and Treasurer shall be ex-officio members.

5. The annual subscription of members shall be two shillings and sixpence, due and payable on the first day of October.

6. The Committee shall cause to be holden an annual apiarian exhibition at a time and place they may deem most suitable to the interests of the Association and its objects; and adopt such measures as they believe will most conduce to extend and improve a knowledge of bee-keeping so far as the funds of the Association will permit, provided always that they shall in no case contravene a rule made in general meeting.

7. That an ordinary general meeting shall be holden once in each year, when the officers for the ensuing year shall be elected, and questions of government of the Association be discussed and resolved upon; an extraordinary general meeting may be called by the acting Committee at any time, and shall be called by the Secretary within fourteen days upon receipt of a requisition signed by any seven members of the General Committee stating the nature of the business for which the general meeting is to be called.

8. The Committee shall purchase annually a swarm of bees and a bar-frame hive to be drawn for by the members of the Association, such drawing to take place at the

annual meeting. [N. B. The member who is successful in drawing either of the above shall not participate in any succeeding drawing until every member of the Association has been successful in doing so.]

9. That as soon and so far as the funds of the Association will permit, the Committee will endeavour to carry out the objects of the Association by means of lectures, meetings, the circulation of suitable books to spread a knowledge of all improvements and best possible methods of bee-keeping, and of the most profitable use and disposal of bee-produce, and generally to do all in their power for the advancement of apiarian science.

Acting Committee:—Mr. W. Ingram, Belvoir; Mr. A. Chambers, Grantham; Mr. T. Castle, Grantham; Mr. W. Brett, Grantham; Mr. J. Bolton, Belton; Mr. Ashwell, Barrowby; Mr. G. Lowe, Belton.

Mr. R. R. Godfrey, Treasurer. Rev. D. W. Pennell, Hon. Secretary.

LINCOLNSHIRE BEE-KEEPERS' ASSOCIATION.

Our Lincolnshire Association is fairly started, as you will doubtless have heard from our indefatigable Treasurer Mr. Godfrey, who has already secured about fifty members. We are intending to send a copy of your valuable *Journal* to every member of the Association as a means of introducing it as our authority on all matters affecting the interests of bees or bee-keepers. We purpose also, with a view of encouraging the cottagers, to purchase a bar-frame hive and a stock of bees, or more as the funds may warrant, to be drawn for as two prizes, enabling one to commence as a bar-frame hivist, and another to commence bee-keeping, if not already having done so. And we have no doubt that by giving prizes at Horticultural or Floricultural shows where, imitating your example, some expert may also show what can be done with bees in advanced management; and by conversation, or by letter, may be able to assist those who have not yet had practical experience. And if the secretaries or members of the Association, as they have opportunity, will converse with bee-keepers, and by private exhibitions seek to impart information, it will not be long before a much better state of things would exist generally upon the subject in this country. The writer has seen a number of instances in which a little knowledge easily imparted by means of the Association or your *Journal* would have preserved the bee-keepers from sad mistakes, and from serious losses. I have also heard of one who had lost four, and another who had lost five stocks this autumn, which loss might in all probability have been avoided if the owners had understood the condition of their hives and the best mode of feeding.

Much has been said upon the best mode of substituting artificial pollen, but I do not remember having seen any reference to the plan I have adopted for furnishing that article to some of my hives. It is the following:—Having observed the great scarcity of pollen, and knowing that the weather was so unfavourable for gathering it, that in all probability as they could not exist without it, whatever supplies of syrup or barley-sugar they might receive, that therefore they might perish for want of nitrogenous food for themselves (for I believe they require it for themselves as well as for their brood), I therefore procured for them some of Robinson's pea-flour in packets, and taking a frame from each of the hives destitute of pollen, I placed some upon *one* side over the empty cells, and shaking it in, left the bees to show their gratitude, or otherwise, by making good use of it for their own and their master's benefit. It is some weeks since; and as they have ceased breeding, I cannot say whether they will make use of it or no, but from their clustering on the comb and apparently feeding upon it, I think they have appreciated my good intentions. As yet I have seen no ill effects resulting from it, so I shall not fear until I do.

The only evil that I can see as possibly arising is the flour becoming mildewed, in which case it will only be what I have seen in the case of the natural food gathered from the flowers and which the bees when they need the space will clear away and fill the cells with something more to their taste. If that plan should commend itself to the judgment of your readers as a means of avoiding all uncertainty as to the bees taking it from boxes and from the cups of crocuses or other early spring flowers, and thus become a means of promoting early breeding or of preserving their stocks if scantily supplied during the winter from destruction, they are welcome to the thought on one condition, that is, that they do not get it patented and forbid my using it without paying a royalty. The apiarian must of course keep his eye upon the stock and judge when his assistance is no longer required in that direction. I shall keep you informed as to the result whether favourable or otherwise; but as I am yet in some uncertainty as to which is the best nitrogenous food appropriate for the purpose, perhaps yourself, or one of your valuable correspondents who have made trials of various kinds and have obtained experience, will kindly afford me the results of their observation.—D. W. Pennell, *Secretary to the Lincolnshire Bee-keepers' Association, 7 Albion Terrace, Grantham.*

THE WEST OF ENGLAND APIARIAN SOCIETY.

A meeting of gentlemen interested in bee-culture was held at Weston-super-Mare on the 19th of November. The attendance was rather limited. Ultimately the following were appointed as an acting committee to carry out the objects of the Society:—Rev. P. V. M. Fillenl, Messrs. Smith, Price, Tite, and C. Lewis, with Mr. O. Poole as honorary secretary. The following rules were also agreed to, and the election of president and vice-president deferred until the next meeting in January next:—

I. That the Society shall be called the West of England Apiarian Society, and consist of a president, vice-president, acting and local committee, the whole of whom shall hold office for one year, and be eligible for re-election.

II. That the objects of the Society shall be the encouragement, improvement, and advancement of bee-culture in the West of England, and a more humane, rational, and profitable mode of treatment for that industrious insect, especially among cottagers, by the circulation of cheap and simple instructions on the subject, by means of lectures, and one or more annual bee and honey shows, in some towns in the West of England as soon as the funds will permit.

III. That the management of the Society be placed in the hands of the acting committee, who shall meet in the month of January in each year to elect the local committee, and fix on the town in which to hold the annual bee and honey show.

IV. That the local committee consist of gentlemen resident in or near the town fixed for the annual show, and that their duties be, to carry out the plans of the acting committee with respect to such show, &c.

V. Every subscriber of five shillings annually shall be a member of the Society, and every subscriber of not less than 2*s.* 6*d.* annually an associate member.

VI. That an ordinary general meeting shall be holden once in each year at the same time, and in the same town as the annual show, when the officers for the ensuing year shall be elected, and questions of government of the Society be discussed and resolved upon.

VII. An extraordinary general meeting be called by the acting committee at any time by which seven days' notice shall be given by the Secretary.

The Society may now be said to have fairly started with every chance of success, and we trust will not be allowed to drop for want of funds. Every lady and gentleman interested either in bees, or the welfare of the cottager class in the West of England, should at once join the Society. We hope soon to hear that donations and subscriptions are fast falling into the hands of the Secretary, and the proposed show carried out, second to none. The future of the Society will depend in a great measure on the success attending their first year's operations. Bee-keepers should bear in mind, that 'nothing succeeds like success;' and joining together, shoulder to shoulder, let them prove indeed to the general public that bee-keeping is not a sham, but capable of being made an important branch of national industry.

DEVON AND EXETER BEE-KEEPERS' ASSOCIATION.

INSTITUTED 17TH NOVEMBER, 1875.

President, S. Bevan Fox, Esq.; Hon. Secretary, Wm. N. Griffin, Esq., Rock House, Alphington, Exeter; Hon. Treasurer, C. E. Fletcher, Esq., Luscombe Park, Dawlish.

The Objects of the Association are :—

1. For the encouragement and advancement of bee-culture in the county of Devon.

2. For diffusing information amongst its members as to the best method of obtaining the produce of the bees, and the most profitable use and disposal of the same.

3. For the advocacy of humanity to the industrious labourer—the honey-bee.

4. For the awarding of prizes for the best specimens of honey and comb, for hives and bee-furniture, and for new inventions calculated to be of real service in the apiary.

5. For the delivery of popular lectures, and the reading of essays on the history, physiology, and most profitable management of bees.

6. For making arrangements to procure for members, at a small percentage over wholesale prices, Ligurian and other bees, hives, and every description of bee-furniture.

RULES.

1. That the name of the Association be 'The Devon and Exeter Bee-keepers' Association.'

2. That its officers shall consist of a president, secretary, and treasurer, and a committee not exceeding six, the whole of whom shall hold office for one year, and be eligible for re-election.

3. The president, secretary, and treasurer, shall be *ex-officio* members of the committee.

4. That the annual subscription of members shall be five shillings, due and payable on the first day of January.

5. That *bona-fide* cottagers be admitted at an annual payment of two shillings.

6. That the management of the Association shall be vested in the committee.

7. That the general meetings shall be held four times during each year, of which due notice will be given.

8. The committee shall arrange that an annual apiarian exhibition be held at a time and place they may deem most suitable to the objects and interests of the Association.

9. Notices of motion for modification or alteration of any rules or bye-laws must be submitted to the hon. secretary at least one week prior to any general meeting, of which the secretary shall give due notice to the members.

10. That any vacancy in the committee that may occur during the interval of the annual meetings held for the election of the officers shall be filled up by the committee.

CURE OF FOUL-BROOD.

Herewith I forward the promised cure for foul brood. I think it best to send it at once, so that fellow-beekeepers who have this dire pest may be preparing for the cure. I have tried them all, and can recommend them with the last recipe,—Be vigilant, for vigilance is certainly required in this matter. The articles of Dr. Preusz and Schonefeld I will translate as time and opportunity occur, and forward.

Salicyl acid is produced from 'salicine,' (C_{26} H_1 O_{14}) a product won from the willow bark (*Salix*), and poplar bark (*Populus*); it is found in the larva chrysomela which feeds on these trees; it is also extracted from the flowers of meadow-sweet (*Spiræa ulmaria*), and the partridge berry (*Gaultheria procubens*); and again by artificial means as the destruction product of certain chemical combinations.

It is a whitish crystal powder of a sweetish taste, without smell, free from corrosive properties; taken inwardly or while using it is harmless, not being poisonous, as is the case with carbolic acid. As this acid has a wide scope of action besides that in the treatment of foul brood, perhaps a little deviation with explanation may be of interest to the fair sex who interest themselves in bee-keeping as well as householding affairs.

Salicyl acid can dissolve in 300 parts of water at an ordinary temperature; it is soluble in 4 parts of alcohol in 50 parts hot oil, and 50 parts of glycerine, without crystallising. It can also be dissolved in brandy or wine, and has also the power of preventing mould growing on articles.

Solution for disinfecting combs by means of scent-distributor: 25 grains of acid dissolved in 8 ounces of water.

Solution for disinfecting knife, feather, or brush, &c., wipe clean and dip in 25 grains of salicyl acid dissolved in 8 ounces of alcohol. This can be kept in a corked bottle for use. Either of these solutions may be used for washing hives, which should be done outside and in, by means of a large painter's brush.

To disinfect Honey.—To every pound of honey, add a quarter pound of water, in which 1 grain of salicyl acid is dissolved, mix well and boil for twenty minutes over a slow fire.

Feeding Syrup.—6 pounds of sugar-candy, 6 gills of water, 1 dessertspoonful of vinegar, 1 saltspoonful of salt: dissolve and boil for half an hour, when cold add from 1 to 5 grains of salicyl acid to every pound, according to the severity of the disease. In the spring months, to the above should be added an egg thoroughly beat up to every pound of syrup, and mix when cold. Be very careful in the use of meals or flour, as a substitute for pollen in the spring.

The fearful plague to bee-keeping advancement and

profit, deserves more study and care to prevent contagion than many bee-keepers feel necessary, not having experienced severe losses by its ravages. But to give a slight idea of its contagious powers, Dr. Preuss, in his first communication on the subject, states that *Cryptococcus alvearis* measures in diameter about $\frac{1}{1095}$ linie, and that a cell could contain 40 billions of spores. This one would naturally be satisfied with, but in continuation of his investigations the learned doctor goes on to say that the diameter of micrococcus is about $\frac{1}{3500}$ linie, which is a considerable reduction in size again. On looking at the above figures it must be self-evident to every bee-keeper that it will not reqnire a large surface to bear these atoms, neither will it require any great movement in the surrounding atmosphere to carry these minute spores far and wide around the hives: *but that it will require very great care and cleanliness to avoid spreading the infectious atoms when once in any apiary.*

The golden rule is, 'Insure the greatest cleanliness around and with all belonging to the apiary.' As part and parcel of this rule the following play no minor part.

1. Destroy the wax-moth and its belongings, and avoid giving refuge for the same, thus avoid the spores being borne from one hive to another.

2. Avoid one hive robbing another to the detriment of both.

3. Use no feather, brush, knife, or other article to a sound hive that has been used to an infected one before they have been disinfected; this must also apply to feeding apparatuses and honey-slingers.

4. Avoid changing frames from a diseased to a sound hive, even if apparently clear of disease, even to those not having had brood in them.

5. Use no honey for feeding without a certainty of its being from a sound hive; it is even preferable to boil all honey for feeding purposes. Daily supply clean water near the hives in a dish filled with moss.

6. Buy no combs for use unless from sound colonies, even then to disinfect is wise.

7. On commencing bee-keeping buy only from acknowledged sound localities.

Supposing the bees are already purchased and foul brood has made its appearance, lose no time, but remember the old adage, 'a stitch in time saves nine,' and to begin to battle with foul brood spring-time is the best.

Procure some unslacked lime, and the first favourable day after the bees have been out and held their foreplay, moisten the lime just sufficient to make it fall to powder, then sow it all round the hives, and under as well as over; do not spare in quantity or space around covered, at least four to six feet in every direction from the hives; as early as possible after examine each hive as far as possible observing, 1, 2, 3, 4, and in every comb where there is or has been foul brood cut the cell or cells out; or what is preferable when there are reserve combs, reject the infected one. If no combs are in reserve, the pieces cut out should be dropped into a box or other receptacle which contains new slacked lime at the bottom; but on no account should the pieces lay about on the ground. Each comb may then be disinfected and placed in a clean disinfected hive with as little comb as possible, containing honey which should be removed and disinfected. The bees should then be carefully moved from the old to the clean hive, making sure that the queen is in at the closing of the hive. Feeding must at once begin with disinfected honey or candy syrup.

The foul hive should at once be closed and removed for disinfection. Should there be no reserve clean hive, all wax, refuse, &c., must be carefully removed from the infected hive and floor-board, the refuse being put in the box containing lime; and after examining the combs as above, and the hive and board made clean as possible, they should at every available part be sponged over with a sponge dipped in the dipping solution, and the hive and board wiped as dry as possible by repeated squeezing of the sponge, and the combs and bees replaced and feeding commenced. For all spring and autumn examinations, it is advisable to have a box or rest to put the frames in, during such time as they are out of the hive, to prevent chilling of the brood, &c.

After all the moveable frame hives have been examined, bar and dome hives may be examined, though this cannot be so completely done at this time of year, further than to clean and disinfect the floor-board as before described; and as a further security, Herr Piep in Wollersdorf recommends to cover the board with dry powdered lime, as before described, and over this lay a sheet of brown paper, on which the hive is again placed; the fallen refuse from the combs, by this means, as well as the paper, is disinfected by the not quite slacked lime underneath. As soon as the weather will allow,* the bees may be driven into another hive and their old habitation examined, the combs pruned where necessary and the whole disinfected as far as possible by means of a scent-distributor and disinfection solution being used as scent well blown down between the combs. The bees can then be returned, the hive allowed to swarm, after which the bees may be, after about twenty days, put into another hive and the old combs destroyed, and the hive disinfected. Where a hive of this class is for a certainty known to be badly diseased, the latter is the safer treatment to adopt. In summer these examinations and shifts are required often. After such examination the ground around should be either dug or raked deep and sown over with lime or watered with diluted sulphuric acid.

At a later examination (say the middle of April to the beginning of May, and at later periods of examination) the queen may be taken away, and thus the propagation of foul-brood checked by a diminution of brood, the same or another queen being given as soon as examination has shown the hive to a great measure free from foul-brood, the infected parts being cut out and disinfected.

To disinfect hives, bee-furniture, and apparatus, if unpainted, after well scraping and cleaning, they can be put into a boiler containing boiling water (this is the best), or into a baking oven: if too large or in other ways unsuitable, place the articles over a boiler, and with a ladle keep pouring boiling water over, until all parts inside and out have been thoroughly scalded, scraping and scrubbing with a brush and softened dirt, &c. removed; afterwards sculling it away by means of the boiling water. After they are thoroughly clean, set out in the sun or wind to thoroughly dry, and disinfect by dipping in or painting over with one of the antiseptics or solutions named.

To disinfect combs use a scent-distributor, taking care that the solution as spray goes into every cell.

To try to disinfect by means of sulphur fumes is of no service whatever.

Salicyl has many other valuable uses in medicine inwardly and outwardly, which we may give at some future time.

By *patience, perseverance*, and *strict cleanliness*, in carrying out the advice here given, every one has the power to check and eradicate foul-brood from his apiary. For much of the advice we are indebted to the late† Dr. Preuss whose name should be honoured and borne in remembrance and respect as one who, by his undaunted perseverance, scientific attainments, and philanthropic character, edged with a silvery lining the dark cloud which daily rendered the prospect of bee-keepers darker and darker as foul-brood spread its deathly desolation.

During the period of cure in the latter part of summer and autumn the hives appear almost free from foul-brood sometimes; this must not be relied on next spring, as a virulent outbreak may take place in the early spring brood. Be vigilant.—J. Wood, *Nyborg.*

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* About when the gooseberry-trees are in blossom.

† Königl. Sanitätsrath Herr Dr. Carl Ludwig Preuss of Dirschau, died the 27th of December, 1873 (of apoplexy), aged 63 years.

ECHOES FROM GERMANY.

BY A COUNTRY DOCTOR.

The Division and Subsequent Reunion of Stocks.
By Herr Gravenhorst.

In the two previous articles I have endeavoured to explain the proper plan of division and the advantages resulting from it, especially referring in the first article to its value in keeping reserve queens. It only remains to point out the mode of management with stocks that have swarmed naturally or artificially, with natural or artificial swarms themselves that show an inclination to swarm, and with stocks that are intended to be built up into honey-stocks.

1. Stocks that have swarmed naturally.

On the same day on which a first swarm has issued from my hive, another is taken already prepared with three divisions, and into that chamber which has the principal flight-hole are put the three combs containing the most open brood, after most of the bees have been brushed from them into the other chambers. If neither of the three combs has a ripe queen-cell, one is given from another comb, and in addition an empty frame is introduced with a comb foundation somewhat larger than is generally used. The remaining brood combs with the bees are divided between the other two chambers as equally as possible. The chamber No. 1 on the right with the principal flight-hole receives all the bees that have taken wing, as the new hive occupies the position of the old one. If too few bees have flown to it by the evening of the same or following day, a sufficient number are swept from the combs of the other departments. Of course care is taken that each of these chambers has a ripe queen-cell, and that they do not suffer from want of water, which can be given them in shallow dishes covered with pieces of straw, and pushed under the hive. By the introduction of riper queen-cells than their own, these populations easily obtain a good start. If no ripe queen-cells are given, the three divisions are left till the eleventh or twelfth day, when an examination may be made to see whether a queen exists in each department, and whether, perchance with favourable weather, one may not already have become fruitful; when such is not the case, a second investigation may be made a few days afterwards. If one chamber is found to be without a queen, this is united to the next as soon as the latter has a fertile one. It is at the option of the bee-keeper now to await the fertilisation of all the young queens, and the completion of the comb-building in the empty frames, or not. Under certain circumstances it may be advantageous, as soon as one queen has begun to lay, to remove the others and to reunite the populations; under others it may be better to wait until all the queens have become fruitful before the subsequent reunion takes place.

2. Stocks that have given artificial swarms.

I naturally refer here only to those stocks from which an artificial swarm having the old queen and occupying the place of the old stock, has been made. These small artificial swarms, which may be considered as approaching nearest to natural swarms, and in many respects excel them, can only be properly made when the old stock is sufficiently ripe, as indicated by the amount of sealed brood, or especially by the presence of queen-cells. The mother stock, now occupying a new position, is divided into two or three smaller populations according to its strength, the bees and combs being divided as equally as possible, and water being given to each apartment until the bees begin to fly freely. On the second or third evening afterwards I give to each population a young unfertile queen or a sealed queen-cell, or in the absence of these leave them to prepare one for themselves. In the latter case, of course more time elapses before egg-laying by a young queen takes place in the stock. The subsequent management may be carried out as in the previous section.

3. First swarms or scions that are preparing to swarm.

Formerly I caged the queen in such stocks as gave indications of swarming—such as a large amount of drone-combs being built, and the formation of queen-cells—and set her free again after removal of all queen-cells on the ninth day; now I divide the population of a three-chambered hive, placing five or six frames with guide-comb and the queen in a cage lightly closed with wax, in the department having the principal flight-hole, the bees and the brood-combs being placed in the other two divisions. When this hive is placed in the position of the old one the outlying bees return to chamber No. 1, which contains the queen, and which receives further recruits during the following days. The restless element is thus all brought into this department and begins to work, building comb and storing honey, whilst queen-cells are raised in the other departments. All ideas of swarming disappear, and nine days of industry are gained, which would otherwise be lost, for while the queen is imprisoned little or nothing is done. If such a hive is indeed allowed to swarm, neither stock nor swarm is of much value on account of the difficulty of joining them again. With this threefold division, however, the reunion is rendered possible in the best and simplest manner. If it is wished to exchange the old queen for a young one, let her wait until one of the young queens in chamber 2 or 3 has become fertile, remove then the old one and the other young one, and reunite the populations again into one, which thus occupies the whole hive and has a young queen at its head; if, on the other hand, it is considered preferable to retain the old queen, this is just as easily accomplished by the removal of the young ones. Such reunited stocks distinguish themselves, the impulse for swarming disappears, and one for building and collecting takes its place, and the hive appears as if possessed with an entirely new spirit. If the young queens are allowed to become fertile, the bees in chamber No. 1 with the old queen will, during this time if the pasturage is good, fill six frames with combs free from drone-comb, for such populations build very quickly. Thus the strong disposition for swarming possessed by the heath-bee, which constitutes the great annoyance of those who cultivate them,* may by this plan of division be led into a path, in which it becomes a blessing to the bee-keeper.

4. Stocks that are to be built into honey-stocks.

These are treated the same as those under section 3. Except that the latter takes place at the end of June or beginning of July, whereas the former is completed in May or by the beginning of June, *i.e.*, sufficiently early for a young queen to be already ovipositing, and the individual populations reunited by the time when the principal pasturage begins. Further, it is important to remark that the reunion must take place under a young queen, and never under an old one, as the latter may easily be induced to swarm out with part of the bees. I did not allow my honey-stocks as formerly prepared to build much comb, so that too much honey should not be used at the time of the chief pasturage; but as prepared in the present way, five or six combs may be very well built by them, for these are built before the time of the principal pasturage, and at a time, when under the old plan during the raising and hatching of queens the bees were almost unoccupied; and, further, the population is strongly excited to work by this means. The spaces occupied in the stocks, treated of in sections 3 and 4 by the division-boards, are of course filled up with frames of comb.

OUTER CASES FOR CHEAP HIVES.

I have much pleasure in sending you the enclosed rough sketch of the cases I have had made to contain pairs of your 3*s*. Cottagers' Hives, one on top of

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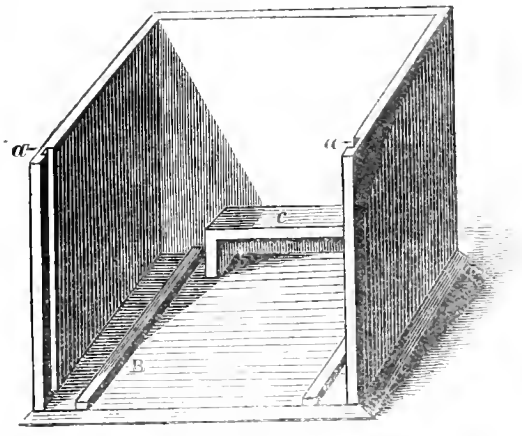
* See note to previous paper, p. 77.

the other, with room above for a super 5 in. deep. I do not think it can be beaten for simplicity, durability, and cheapness of construction, and it keeps the hives dry in winter and cool in summer.

The engraving shows the back of the bottom section of the case, with the back-board out. *a a*, fig. 1, are the grooves cut in each of the sides down which the back-board slides. *b b* are two slips of hard wood ¼ in. thick and ¼ in. wide, on which I



slide your Cottagers' Hives when they are put into position. I intend to tack strips of zinc over these slips of wood, which will make the hives slide in and out even more easily than they do at present. The front view of the hive is greatly like that of your new prize hive, p. 133, but it has a flat ridge to the roof, and is in three sections instead of two. *c* is a piece of wood 1 in. thick, which fits round the entrance-hole inside the case, which prevents the hive from touching it in front, and will not permit the bees to get from the hive into the case. When this case is closed there is thus a dead-air space all round the hive.

The question of the roof is so very simple, that I do not think we shall be able to improve on that long since advocated by you, and which I have adopted. I have never thought you guilty of recommending pyramid roofs. I hope you will soon inform your readers who are the makers of the Prize Honey Extractors of 1875. I should very much like to see a simple machine made like that mentioned to you in my last letter. The makers of these machines might learn a good deal by studying the working of the sewing machines now in use; they would find that the simplest and most compact cog-wheel arrangement works the best, and is most appreciated, as, for instance, the 'Little Wanzer.'

We have a large quantity of fruit trees, limes, chestnuts, whitethorns, &c., in this most picturesque of Severn Valley villages, but I am afraid our bees are of a most inactive description. The cottagers here consider 10 lbs. of honey per hive to be a most excellent yield.—Chas. Lyne, *Arley near Bewdley, Nov.* 10, 1875.

A NEW METHOD OF LIGURIANIZING.

Dzierzon's suggestion (originating in an experiment of Huber's) for inducing bees to raise queens in positions convenient for the removal of the cells appears to me to open a way for a simple and rapid means of Ligurianizing an apiary. Kleine's mode of carrying out Dzierzon's suggestion, as given by Langstroth, p. 191, from Wagner's translation of the passage in *Bienenzeitung*, 1858, p. 199, is as follows:—'When I have selected a comb with unsealed brood for rearing queens, I shake or brush off the bees, and trim off, if necessary, the empty cells at its margin. I then take an unsealed royal cell, which usually contains an excess of royal jelly, and remove from it a portion of the jelly, on the point of a knife or pen, and by placing it on the inner margin of any worker cells, feel confident that the larvæ in them will be reared as queens; and as these royal cells are separate and on the margin of the comb, they can be easily and quickly removed.'

Now I see nothing to prevent this plan being adopted for purposes of Ligurianizing an apiary containing one Ligurian stock, thus,—In the swarming season artificially swarm, or remove the queen from, a black stock (A), and in two or three days, when queen-cells are raised and still open, procure from some of them a supply of royal jelly. Next artificially swarm the Ligurian stock, securing all the bees; take one comb from the centre of the brood-nest in each of as many black stocks (B C D, &c.) as there are combs of the Ligurians containing unsealed brood fit for rearing queens from, and give the combs so obtained to the Ligurian swarm; then treat several cells on each Ligurian comb as described by Kleine, and give one of these combs to each black stock (B C D, &c.), removing the queen or artificially swarming them, as may appear best, removing also any queen-cells that may have been begun in preparation for swarming. The bees in B C D, &c. will then raise queens from the Ligurian brood, and the superfluous ones may, when sealed, be cut out and given to other black stocks in the usual way, or reared in nuclei. It will be necessary to go over the hives in a week or so to remove any queen-cells that may have been raised on combs containing black brood. I have had no opportunity since the idea occurred to me of putting it in practice, but it strikes me as feasible, and the number of queen-cells raised from one stock simultaneously would be very large; moreover, the original Ligurian stock having received as many combs, and presumably as good ones, as it lost, will very shortly be ready for the process to be repeated. The operation should not be commenced until a good supply of drones have been produced in the Ligurian stock, otherwise there would be a scarcity of that very desirable and indispensable element. Of course, the objection to this plan is that it keeps several hives queenless for some days; nevertheless, I am not without hopes of its being worthy of adoption in some cases.—H. Jenner Fust, Jun., *Hill, Fulfield, Gloucestershire, Nov.* 9, 1875.

ARE LIGURIANS LESS HARDY AND SOONER BENUMBED THAN ENGLISH BEES?

I Ligurianised a bar-frame hive on August 13th. Young Ligurians made their appearance on September 12th, and breeding has gone on ever since, pollen being carried in largely up to October 13th,

whenever the weather allowed the bees to work; but at that date the English bees outnumbered the Ligurians at least two, if not three, to one.

On Tuesday, October 12th, the sun rose in a thick fog, which cleared off at 10 A.M., and the day became warm and sunny, which drew out the bees into active work.

Wednesday, the 13th, also began with fog, which lifted at 11 A.M., but the sun was cold and chill at 3 P.M. Happening to pass the hive at about that time, I observed several Ligurians alighting, not on the floor-board, but on the sides of the hive, and after hanging there a few minutes dropping off as if dead. This led to a search in front of, and around the hive, when fourteen bees—two black, the rest Ligurian — were found apparently lifeless. They were picked up and placed on a sheet of paper before a fire. Nine of the Ligurians revived, and at the end of ten minutes or so were let loose near the hive, which they entered. The other three and the two black bees were dead. To secure that any chilled bees should be seen, a large garden-mat was placed in front of and under the hive, with the following results.

Thursday, October 14. Morning showery, followed by pouring rain at 10 A.M., about which time two Ligurians were found on the mat drenched, but they revived at the fire, and were returned to the hive.

Friday, 15th. Sunny at intervals, but with a cold blustering wind. Thirteen Ligurians and six black bees were picked up from 12 to 3 o'clock. Nine Ligurians and four black bees revived, the others died.

Saturday, 16th. My gardener picked up five Ligurians, and on

Sunday, the 17th, which was fine and sunny, though the air was cold, eighteen Ligurians at 4 P.M., and six black bees were picked up. They were put into a small paper box, and most of them revived at the fire, and were returned to the hive.

Monday, 18th. Raining; no bees out.

Tuesday, 19th. The same, with *drenching* rain.

Wednesday, 20th. Stormy, with rain, but fair at intervals until 11 A.M. Three Ligurians, one black, on the mat; one Ligurian only revived.

Thursday, 21st. Temperature much higher; a warm day, with clear sky at intervals; many bees out and much pollen brought in, chiefly by the black ones. At 2 P.M. twenty-six Ligurians were picked up and five black.

Now the inferences I draw are these: Either (1st) that the Ligurians are less hardy and sooner benumbed than our English bees; or (2ndly) that being more active workers than the black ones, they brave the cold, venture out, get chilled, and die when the *English common sense* of our native bees teaches them to stay warm at home and live. Then comes the question, Are Ligurians less suited to our cold damp climate than our native bees?

My experience, however, is very limited, and I should be glad to know what any of your numerous correspondents have to say on this point as to the result of their own observation. As a question of bee science, I am much interested in it.—J. H., *Vale of York*.

BEES TRANSFERRING EGGS FROM ONE COMB TO ANOTHER.

From what I wrote in the August number on the above subject, I did not intend to say more until we heard the evidences of gentlemen, who, like myself, had given this subject their special study; but unfortunately your correspondent, Mr. Bassano, Haden Cross, Old Hill, has misconstrued my meaning, and thinks himself stung, when the fact is, I neither did nor had the inclination to do so. He reminds me of an incident that happened in my own apiary upwards of twenty years ago. I chose an apprentice, an Irish lad, of some fifteen summers, as my assistant, on this occasion to turn or drum out a lot of swarms; and having got all in position and the bees quieted, and Jamie initiated into the art of driving, he was set to work, and was succeeding apparently pretty well when I left him. However, in taking a turn round to him in a few minutes, I inquired how he was succeeding, and if he was getting any stings; both questions were answered in the affirmative. I inquired if they were painful, his rejoinder was, 'Bedad they were!' and he had a difficulty in keeping them out of his mouth: no sooner had he spoken than I heard an unearthly yell, followed by declamations of the most horrid nature, and supplications to the Holy Virgin and all the saints he could remember; at the same time, hives, sticks, and the appurtenances required, were flying in every direction; while Jamie, not attempting to fly the ground, writhed in pain, his gesticulations making him appear comical in the extreme. Seeing his case becoming desperate, I ordered him to run; this acted like magic; and brought to his mind that he was not without resources, so in an instant he was up and out of sight, and never after would he face the bees.

This appears to me to be the case of your correspondent, he thought he had been stung when he was not. The fact is, I dealt leniently with him in that letter, and gave him the credit of producing a very plausible and interesting account, and immediately thereafter described what was as likely to be the case, and I then attacked the dogmatist who asserts, but cannot give facts from observation. Your correspondent's letter in the September number gives what he considers proof to substantiate that bees do transfer eggs, but it does not convince me, because he only produces evidence that other agents were present, which happens far oftener than people are aware. I will not analyze his article further on this point, but wait the evidence of those who have made this their special study, nor will I accept mere theory in preference to practical observations made by gentlemen of sterling worth and untarnished fame; nor to my own observations and studious experiments, and which I have been the author of hundreds, one or two of which I may here relate. First, I have seen the bees hundreds of times removing and destroying eggs, but never replacing one. Second, a case of a very prolific queen with but a moderate swarm, in which she had filled every cell the bees could cover, and had likewise laid many eggs in a great number of cells (by the way, which I think are not fertilised); these combs were taken, the extent of the eggs and brood

measured and noted, were then given to a strong queenless colony with additional empty combs; and if bees transferred eggs, what was more reasonable to suppose than they would do so in this case? But, no, nothing of the sort took place, every surplus egg was removed, and many of the cells emptied altogether; and queen-cells taken from another hive that contained eggs, but which I removed, were never noticed, and queen-cells, as is always the case, raised from the foundation from worker comb, that contained eggs or grub previously placed there by the queen.

If bees were economists in transferring eggs, surely some of the experiments, or the observations from unicomb hives, would have elicited that bees transfer eggs, if they did so; but I have never yet had my suspicions aroused that they did, and the very last experiment I made about a month ago revealed nothing but the contrary.

A swarm of bees were put into a hive of combs for four days (during that time a considerable number of eggs were laid), the bees were then transferred to another hive containing combs of honey, and the combs containing the eggs were placed right underneath, and in a few hours every egg was removed, and not one of them replaced or transferred into their new quarters. I could give innumerable instances of experiments, all proving that eggs are not transferred, and prove that mistakes arise often by the presence of fertile workers, and more than one queen in a hive. But, as I said before, I am open to conviction, and wait the evidence of gentlemen who can be relied upon, and in this I am supported in the same number by your correspondent, 'A. J. Anderson, Aberdeenshire,' wherein he relates the fact of three queen-cells containing workers only. This same thing having occurred so often in my own apiary, convinces me that it is the stumbling-block to many in egg-carrying, because these workers, had they been very minutely examined, would have been found minus something that belonged to workers; and had they been allowed to hatch, in all probability the perfect queen would have been dethroned, and these abnormal bees would have gone on laying eggs at intervals; at one time the hive would appear queenless, and on examination at another eggs would be found. But to return to the latter part of your correspondent's letter of irony, and his imputations as to my assumption, let me ask him if he has never failed to observe the object of his research even when he was most anxious. I know it has been the case with me; often have I searched for a queen and failed to find her; and once after I searched for more than half-an-hour it was found by a child of four years of age upon a frame I had examined carefully; and during the past summer while assisting 'A Renfrewshire Bee-keeper' with a hive, I remarked that the queen-cells therein had neither eggs nor grub, and this was after I had satisfied myself more than once: when he drew my attention to the fact that I was wrong; I at once saw my error, changed my position, when there appeared to my view newly hatched grub in every one of them, which are always more difficult to see than eggs. So much for this observation, and I could give a hundred cases of a like nature, were it desirable; but I have occupied considerable space already.

Let us take a glance at the articles in the October Number by 'J. S., Arbroath,' on the same subject; in it he argues that eggs are not so minute but one can easily see them; this may be so, but his letter proves that, contrary to his opinion, both he and his friend have been mistaken, because there were no eggs to see, but well-matured grubs. He also mentions that none of my arguments in the August number will explain this case to his mind; this may be so, but it will not be very difficult to explain in this letter to any reasonable person's mind that his eyesight has been very defective, or he has been labouring under some hallucination when he penned the article in question, because his statement is perfectly absurd if he tries to make us believe that the bees transferred the eggs now matured into queens. He tells us that on the third day, that is, forty-eight hours after he examined it first, he found the queen-cells sealed; according to this, large size grubs must have been transferred, and not eggs. For my part I can see no other motive than to cause a sensation by writing such an article, or that he is ignorant of the natural history of the bee, or that his imagination has been preying upon theoretically foregone conclusions, without taking the trouble to examine and investigate into the mystery of the hive, and so judge for himself. Had it not been to point out the error to himself, I certainly would not have taken the trouble to comment on it; but, perhaps, he may by this time have seen the error, if not it will be an advice to him to learn what he is writing about before he finds fault with others; and as the intention of this *Journal* and its writers is to place facts gathered by experience and observation before its readers, it is to be hoped they will have good grounds for their belief before advancing anything as a fact, and to learn that one observation is worth more than a hundred theories; the latter is the only proof yet that has been produced as to egg-transferring, and at least out of more than a hundred experiments it has never come under the observation of—A Lanarkshire Bee-keeper.

DO BEES EAT FRUIT?

Much as I could wish to defend our little favourites from more prejudiced or malicious attacks, I am afraid the evidence I possess, derived from my own observation, will not serve to wholly acquit them of the charge brought against them. In the year 1873, my raspberries were attacked by the bees as fast as they became ripe. Of this I was the daily witness. As long as there were berries on the canes, they were completely drained of their juices. Now although I had kept bees for some years before, and my neighbour had done the same, I had never yet suffered from such practices; and although my garden is well stocked with fruit-trees of many descriptions, and the plums, pears, and peaches, are regularly and freely attacked by wasps and blue-flies, I never once observed a bee amongst the marauders.

The year 1873 was the only season in which they so conducted themselves; and my annoyance then was so great that I had serious thoughts of parting

either with the raspberries or the bees. From this it would appear that bees do not habitually eat fruit; but that an unnatural taste is sometimes contracted by a colony for this new description of food; that the generation passes away before the next fruit season, leaving descendants who resume the orderly and normal habits of their kind.

But while exposing these occasional delinquencies of our little friends, I cannot overlook the advantages our fruit-gardens reap from their assistance; and since they contribute so largely to increase our crops, I do not grudge them a share of the fruit.—C. J. HARLAND.

[We think there can be little doubt but that in times of poverty such as they have just passed through, bees will gather and store food which in more favourable seasons they will not notice. If the white clover and the limes yield their sweetness, and the weather will permit the bees to go abroad, so fond are they of the flowers, or *so faithful are they to the duty which Nature has imposed on them*, that even newly-gathered nectar in process of extraction in an apiary will not tempt them from the fields and their pleasant work of fructification. In such seasons as the latter fruit might ripen and rot and bees would not touch it, but in a time of distress and destitution like the past season has been, the poor bees were compelled for dear life to lick up anything of a saccharine nature; and where ripe fruit had first been punctured by wasps or other insects, or damaged by the weather, there bees might be found *licking* up the sweet juices, *but not eating the fruit*. The wholesale charges lately brought against bees, in the *Times*, of *attacking* and *destroying* crops, not only of *ripe*, but also of *green* fruit, are simply absurd. Bees cannot puncture sound fruit, and in a general way there is no temptation for them to do so, and they *cannot* eat it. Wasps can do both; and, probably, were it not for them many nations of smaller fry might perish for lack of food, through inability to break through the outside protection. The difference between the mandibles of wasps and bees will be easily conveyed if the hands be pressed evenly together, with the thumbs lying close to the forefingers: in the wasp the thumbs will represent the mandibles, and it will be readily seen that a sawing motion can be made with their nails, which would quickly perforate the rind of any fruit; but in the bee the mandibles are two soft pads, which come together like the ends of the forefingers when kept straight; in fact, it might almost be said that wasps have teeth, and that bees have only lips.—ED.]

CURE FOR BEE-STINGS.

During my visit to the late Crystal Palace Show, I heard a great many inquiries as to the best remedy for bee-stings; in only one case did I mention the remedy I use, and in that case I cautioned the person as to its deadly nature. It has struck me since that perhaps many of your readers would like to know of a good remedy, which can also be used effectively against that enemy of the bee-keeper,—I mean the wasp (of course I leave it to you whether it is desirable to publish it): it is Cyanide of Potassium. An ounce of the salt dissolved in a little hot water, a piece of lint wetted with the solution, and placed in front of the entrance of a wasp's nest (when the sun is on it, or in warm weather to be preferred as the evaporation is greater, and it is the vapour which kills them), in a quarter of an hour you may dig the nest out if not too large; if very late in the season more time may be required. I took out the whole and destroyed in the season of 1868 when they were very plentiful, no fewer than twenty-four nests, some of them very large. It was in taking one of these that a wasp stung me, I put a portion of cyanide on, and it cured it instantly without swelling, and I have used it with good effect for bee-stings since.—ALFRED J. CLARKE, *St. Ebbes, Oxford.*

DO BEES USE SOOT?

What think you of the following fact in bee economy extracted from p. 210 of De Quincy's *Confessions of an English Opium-eater?*

'In the large, capacious chimneys of rustic cottages throughout the Lake district, you can see up the entire cavity from the seat which you occupy as an honoured visitor in the chimney-corner. There I used often to hear (though not to see) bees. Their murmuring was audible though their bodily forms were too small to be visible at that altitude. On inquiry, I found that soot chiefly (chiefly from wood and peat) was useful in some stage of their wax or honey manufacture.'—H. JENNER-FUST, JUN., *Hill Cottage, Falfield, Gloucestershire.*

LONGEVITY OF BEES.

Do you think, Mr Editor, that bees live longer as a rule in some districts than they do in others? Are there localities more favourable to their longevity than others? Will certain methods or modes of keeping them tend to lengthen their span of life? Are there known varieties or species that live longer than others; or are there strains of the known varieties which have been improved to live longer under the same conditions?

These queries struck me the other day when reading an article by a well-known authority in a contemporary. He says, 'One writer stated recently that bees live only six weeks in summer.' He is 'very sorry for that statement, for no statement could be much more incorrect. Bees live nine months, and he has had a swarm that worked well for three months in summer without breeding, and at the end of that time the bees seemed about as numerous as they did when they were hived.'

Now we all know what modifications and improvements have been and are still being made on all other kinds of stock; how a breeder can, by methodical selection, and with a definite object in view, arrive at almost any standard of perfection he chooses. Why is it not possible to do so with bees also? Although we cannot isolate and control the impregnation of the queen-bee, still, if all the bee-keepers of a district were to unite with a fixed aim at lengthening the allotted span of bee-life, is it not possible, on the principle of the 'survival of the fittest,' that in a few generations a strain could be got that would have vital force to live and work hard during the whole summer?

If there is anything in this idea, 'writer' and 'authority' may be both correct in their statements. 'Writer,' like most of us, has only the old short-lived variety, and 'Authority' may already have the new improved long-lived strain. I can give you two instances of proof of the longevity of bees in this quarter, both trustworthy facts.

On the 21st Sept. 1874, I introduced a Ligurian queen to a strong black stock in a Pettigrew hive which had been four weeks without a queen. At the end of May 1875 there was not a black bee to be seen in the skeps. On the 2nd June last a hive belonging to a neighbour threw off a prime swarm, which was safely hived. The old hive either failed in raising a successor or the young queen was lost. About the beginning of July he told me 'the skep was queenless, for the bees were doing nothing but sunning themselves on the flight-board or looking in each other's faces.' I purchased the skep and drummed bees and drones out of it the first week of August, and there were not 150 in all. If you could give me bees, Mr. Editor, or tell me where to get them, that would on an average live three months in summer, say from the beginning of April to the end of August, I should show you hives and supers that would weigh cwts. and qrs. in place of lbs. and ozs. as now.—J. S., *Arbroath.*

THE SEASON IN STAFFORDSHIRE.

What a state verging on starvation bees are in here and everywhere so far as I can learn! Has the heather harvest recouped those who have had access to it? I called in upon a cottage bee-keeper about six miles from this a fortnight since and found him and his good wife in despair—the bees of seven hives were already dead, and others were evidently at their last gasp; and the poor appliances for feeding at the mouth, or underneath the hives, did not afford, with their driblets, enough to provide a bare daily existence! I immediately extemporised a feeder as a pattern for others, and cutting a hole into the top of one of their skeps for them to follow suit with the rest, and gave them your receipt for syrup. My feeder was this:—A large wide-mouthed bottle (such as sweets are displayed in in country shops to tempt stray halfpence out of school-boys' pockets), with its bung pierced with my penknife in two places, and two pieces of the stem of a tobacco-pipe inserted so as to pass just through the bung on the inside, and remain flush with the outside. The bottle would hold about 5 lbs. of syrup, to be taken down 'continuously from two holes.' I filled the bottle with water to show the good people how it would act. They were astonished and delighted; and so I hope, before the day was out, were most of their bees, for they said they would begin at once to boil syrup, make feeders, cut holes in the hives, and adjust them. When I came home I made myself a similar feeder, and have used it ever since. It answers well.

In spite of the bad honey yield this year I was able so far to preserve my 'bee-attitude' of last year at our Church harvest-thanksgiving as to present this year a super of 23 lbs., taken from the same hive as that whence a super of 26 lbs. was presented last year, without having fed the hive at all in the intermediate winter. To be able to state this fact silences many a voice of hostile prejudice. 'Better to kill them outright than take their honey and let them "clem" (Staffordshire for starve) to death.' 'What's the good of taking their honey and leaving the bees if you have to feed them back again afterwards?' These are the supposed unanswerable objections with which one is met at the threshold of one's advocacy of an improved method. Allow me to congratulate you upon your success in obtaining the first prize for hives at the late Crystal Palace Show. I hope you may always be in the van, for your energy in the cause, and the simplicity of your bee inventions, deserve it, in the opinion of—DEBORAH, A VOICE FROM STAFFORDSHIRE.

Foreign Intelligence.

FRANCE.

The *Anatomie et Physiologie de l'Abeille*, by M. Gyrdwayn and translated from the Polish by M. Pillarin, has now been brought to light by the publisher Rothschild. The execution of this work is reported to be beautiful. Twenty-five francs is the price fixed for same.

Commenting on the discussion which took place lately in the *Times*, on the merits and demerits of bees, the *Rucher* of Bordeaux says, 'All the observations made in our apiary on this subject, and which have been reported by the local press, fully prove the impossibility of a bee to attack fruit, his jaw not being strong enough for that purpose. Hence a bee must be satisfied with the sucking of such fruit as may have previously been the prey of wasps or hornets, thereby preserving a juice which would be entirely lost to the world, or, if left, would only tend to hasten putrefaction on the fruit by which it is emitted. We wish,' the *Rucher* adds, 'that our humble voice could reach the *Times*, as our assertion, if upheld by that potentate of the press, might go far to weigh against those prejudices which exist against the bee.'

Referring to the directions given some time ago in the *British Bee Journal* for finding and destroying queen wasps, the same *Rucher* says, 'These are also to be found in great numbers on a fine spring day along shallow waters where they go to drink; under such circumstances their capture is very easy, as the water which serves as a projectile is near at hand.'

A Bee Conference was held at Pessac on the 24th October, M. Tampier, President of the Société de la Gironde, in the chair. The President in his opening speech pointed out that so far the success of the Association, hardly two years old, has by far exceeded all expectations, thus proving, he said, 'the need which existed for such an association.' In the course of his address he mentioned that the latest adhesions number 117, and that among its members were now to be found many celebrities of European fame in matters of apiculture. In conclusion, the Chairman remarked that besides its ramified connexion in France, correspondents were contributing from Italy, Switzerland, United States, the Brazils, Turkey, Egypt, and other countries.

ECHOES FROM THE HIVES.

Leicestershire.—'If the Show is not satisfactory, the blame, in my mind, will rest with the Association. Each Show ought to succeed only if the public have been, in the year, taught the value of the art. The first was a novelty—people went to see bee-conjuring; all others must be because the people *want* to learn. It is natural that each inventor should press his goods—no doubt he believes them to be the best—but your *Journal* must correct the ill effect of this; it must not only be an exponent of the views of others, but *a safe guide.* Every year we shall look more to this latter in the *Journal.*'

Somerset.—'In company with the majority of our countrymen we have been having extraordinary weather for a month past. The poet was not far wrong when he wrote these lines—

"No warmth, no cheerfulness, no healthful ease,
No comfortable feel in any member;
No shade, no shine, no butterflies, no bees,
No fruits, no flowers, no leaves, no birds!—November."

But the weather during the month has been much worse than usual. Rain has fallen almost incessantly while the gales have been unusually numerous and violent. A local meteorologist notes that in the eight weeks ending November 14th, he registered a rainfall of nearly 15 inches, which, he says, "is within an inch of the average for six months, and shows an actual excess of more than 9 inches. The total yield of the present year," he adds, "to November 14, is 40·682 inches. The annual average is slightly over 32 inches. Still it has been mild, and we have been gathering roses, violets, and ripe raspberries and strawberries, in our garden, while in the brief intervals between the storms the bees have been busily engaged. I saw dozens go home laden with pollen as late as November 19th." We are looking forward to brighter days next year, when we hope the proposed county Association will be doing good work. You will judge that bees are not very highly valued in some parts of Somerset when I tell you that a friend tells me that a cast recently settled in a hedge close to the highway, where they built combs and remained for weeks undisturbed. A professional gentleman living near me was surprised a week or two ago to find one of his stocks desert their hive, but a little examination proved that they had been literally driven from home by numerous immense slugs and snails.'

Arley, near Bewdley, November 3, 1875.—'The present Slinger is too cumbersome. The machine I want is one like Walton's (without a frame), but with cog-wheels instead of a band—*no* perpendicular shaft in the revolving cage; this cage to contain a pair of moveable folding frames, as illustrated in a former *Bee Journal*, to hold combs from skeps as well as in frames. My Honey Extractor would then be useful to the cottagers who live in my neighbourhood, as well as to myself. You may depend that this is the article that is wanted.'

Edingthorpe.—'I have seen in "our *Journal*" bees called "Our little friends," "Our pets," "Little demons," "Robbers," "Mongrels," &c.. But why are bees like Monkeys? Because they are Apes (A-pes). I have made a transferring-board according to your printed instructions; also a board for fixing the nails in frames; also your guide for putting frames together. They are capital. I have made also a complete Woodbury hive."

Dartford.—'I have a stock of black bees that, in February last, were possessed of 20 lbs. honey. In November they have 6½ lbs. So much for the 1875 season. I have covered the alighting-board of my hives with perforated zinc, so that the bees may have exercising room during the winter. A neighbour of mine, on going down his garden, was surprised to find a swarm clustered in the hedge, where they had constructed four splendid pieces of comb. He got them in a straw skep, and all seemed to be well with them until about two months after, when, seeing no bees about, he raised the hive. Not a single bee was there, but the combs were almost covered with earwigs. I would add, he had kept it covered with a sack.'—A Young Bee-keeper.

'I think it very unadvisable to continue to hold *the Show* annually at the Palace. As all the world won't go to the Show, the Show must go to all the world. Local Associations will always be confined to certain localities, but the Association of British Bee-keepers should journey about; just as, in racing, does the Grand National, and in agriculture, the Royal Agricultural Association. It would, therefore, seem to my mind that this year's Show should have been at the Alexandra Palace or the Welsh Harp, favourite localities of pleasure-seekers. Then, next year, say Bedford, and after that Leicester, and so on; returning, perhaps, every fourth or fifth year, to the Palace—each year waking up a new neighbourhood. What do you think?'

[From our experience at the Grantham, Stamford, and Sandy Exhibitions, we are convinced that, by holding the Show in conjunction with some other great attraction, it would be much more largely patronised, and would produce far better results. Perhaps the Committee may be induced to render it migratory. What great gathering will welcome it?—Ed.]

Queries and Replies.

Queries No. 137.—1. Should not a honey-comb be so placed in a honey extractor as to revolve edge first? Will you be good enough to give the distance the comb should be from the centre spindle, and the sizes of the wheels when a band is used instead of cogs?

2. Through how many holes should syrup be given, and in what quantity daily at the present season when the object is to feed for the winter?

3. It has been stated that bees fed on moist sugar syrup frequently suffer from diarrhœa, have you observed this, or is it only an exceptional occurrence? People are met with who make their syrup of this sugar, but who do not complain of disease; others are found who use treacle habitually as spring food. It seems very difficult to perceive why this should be an unwholesome bee-food; do you from your extended experience declare it disease producing?

4. Have you any experience of the advantage or disadvantage to be derived from the administration of salt to bees in syrup or other way?

5. What is a good, cheap contrivance for weighing hives and supers?

6. Are bees with an orange tip on each side the abdomen on the upper ring indebted to Ligurian blood for it?

7. What is the value this month of an English fertile queen?

8. What is the best book on bee-keeping as practised by the most advanced apiculturists in Scotland?

9. May most be learnt from German, French, or Italian bee journals with regard to apparatus and management?

10. Is bee-culture in a more developed and advancing condition in America or Germany?

11. What is the composition of pollen?—J. H. E.

Replies No. 137.—1. It is not absolutely necessary that combs should be placed in extractors so as to revolve edge first. In Mr. Cowan's machine of last year, which he continues to use, the combs stand like radii from the spindle, and the honey flies out satisfactorily; but we prefer that they should stand at right angles to the radius, or nearly so, and, where possible, that their bottom edges should be placed in the direction of revolution. The sizes of the multiplying wheels, whether geared or grooved, need not vary more than as three to one, and the distance of the combs from the centre spindle (with such motion) not greater than four inches.

2. All feeding for winter should be done before the date of your letter (Oct 23), or barley-sugar should be given. When slow feeding is useful in spring or autumn stimulation, or for autumn storage, the supply should be constant, and in almost all such cases from one to three pin-holes will be sufficient.

3. Moist-sugar syrup is more liable to fermentation than that made from loaf or baked sugar. Loaf-sugar syrup is the best food for bees when liquid food is admissible, and, as a rule, it is cheaper than any other. We *have* observed diarrhœa in stocks fed upon moist sugar, ale, &c., and have not been able to trace the disease to any other cause. There is no getting away from the fact that moist-sugar syrup being liable to fermentation is dangerous, and should be avoided, for fermentation within the hive is almost certain to cause dysentery, which is often the forerunner of foul-brood. We cannot understand why people will persist in giving their bees dangerous messes when pure, wholesome food can be more cheaply obtained, nor can we see any use in in discussing the question.

4. Bees require salt occasionally, and appear to delight in that which they obtain from the neighbourhood of piggeries. We have repeatedly offered salt water in our apiaries, but it is not appreciated. Our neighbours keep pigs.

5. Salter's spring balance is most convenient, with strings and hooks, or simple loops passed under the hives. A stick is then passed through the ring on the top and the hive 'hefted.'

6. The orange-blossom may be due to the admixture of Ligurian, or Egyptian blood, both of which varieties are yellow-banded. The new 'Cyprian' bees are also yellow.

7. Common queens are of little or no value at this time of year; we give ours away, when substituting Ligurians, and the latter are safely enthroned.

8. We know of no better work on advanced apiculture in Scotland than may be found in the *British Bee Journal*, vol. i. in the able articles of 'The Renfrewshire Bee-keeper.'

9, 10. The Germans are far more advanced than the French or Italians, and probably they beat all other nations in the depth of their research, but the difficulties of their language prevent the general dissemination of their ideas except by the favour of volunteer translators. Hence, the Americans being better understood, are more often quoted as authorities by English bee-keepers.

11. Pollen is chiefly nitrogenous. When exposed to the microscope it is found to put on a variety of forms in the flowers of different plants, being in the Helianthus a prickly ball, like a burr; in Geranium, it is perforated; in Symphytum, it is twin, or double; in Malva, it is a toothed wheel; in Viola, it is angular; in Narcissus, it is kidney-shaped; in Borage, it is like a roll of parchment.—Ed.

Query No. 138.—I have a large garden in Camden Town, which with other gardens and about a quarter of an acre of ground (worked as a market garden) forms a triangle entirely enclosed except at two corners by houses of three or five stories in height. At one of these corners is a church (detached), and at the other a private house, 'standing in its own ground.' My garden is situate half a mile as the crow flies from the Regent's Park. I shall be greatly obliged if you will inform me, Whether bees would be able to find their way back to my garden after a day's labour notwithstanding it is so shut in? Would the bees in an ordinarily good year be able to gather sufficient honey in the neighbourhood, viz. the Regent's Park, the Botanical Gardens, and the private gardens in the vicinity, to keep themselves and leave any margin of profit?

From such a poor country I do not expect they would do much good, but if I could keep them merely for a knowledge of their habits and the pleasure to be derived from their study I should feel amply rewarded, and any suggestions from you will be gladly accepted by—A Novice.

Reply to Query No. 138.—The bees might be safely trusted to find their way home again, barring accidents of wind and storm, to which all bees are liable. Half-a-mile is not half-a-minute's journey for a bee on business intent; and if it could only be sure of filling its honey sac while strolling in the park in a reasonable time, the distance would be but a trifling consideration. Are there plenty of flowering trees and shrubs there? Laurustinus, box, almond, the red flowering currant, chestnuts, limes, and others? and does the Park bear white clover abundantly? The last-named you may aid in producing by scattering seed. Your own garden might be made to produce some tempting patches of flowers. Crocuses should be put in now; do not be afraid of putting them deep enough—ours are near a foot deep and out of the way of ordinary garden border-digging, and they come up every year in increased beauty and perfection. Persuade your neighbours to plant and sow also, and thus cause a continuous yield, even though it be scanty. Mignonette, phacelia, cornflower, balm of Gilead, wall-flowers, white Alyssum, white Allison, and others, will form a continual attraction; and, with a few fruit-trees, we have little doubt but that, with careful cultivation, one or two stocks of bees *would* yield a profit beyond that derived from the intense pleasure the study of their wondrous habits affords. Try them by all means, and carefully conducted the experiment will be valuable.—Ed.

Dr. de Beauvoys, some time since, made known to the French Société d'Acclimatation a new method for taking the honey from bees, without resorting to the cruel practice of stifling them. The plan adopted is to subject the hives to the vapour of flax dipped in salts of nitre, which acts as a powerful narcotic, depriving the bees temporarily of the power of movement, but not destroying them.

Corrections.—In the letter on County Associations, in our last issue, page 137, the word 'directories' was misprinted 'dictionaries.'

In the list of names forming the Committee of the British Bee-keepers' Association instead of the Rev. J. D. Glennie, read W. O. B. Glennie, Esq.

NOTICES TO CORRESPONDENTS & INQUIRERS.

'C. H. E.' will feel extremely obliged to Mr. A. Dixon if he will kindly send to the Editor of this Journal a detailed account of the success he has achieved, and the manner in which he winters his bees—by suspending them in a dark, dry cellar, or by burying them in the bowels of the earth? Both of these being deeply interesting and practical questions, and of great moment to the apiarian, neither of which subjects have as yet been treated upon by the readers of 'our *Journal*.' Other gentlemen, in addition to Mr. Dixon, will, perhaps, be good enough to relate their experience upon these important topics.

Covers for Binding the British Bee Journal *may be had, price* 1*s., at the Office, Hanwell, W.*

THE

British Bee Journal,

AND BEE-KEEPER'S ADVISER.

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Editorial, Notices, &c.

JANUARY.

The lapse of Time, the great renovator and destroyer, has brought us to the threshold of 1876; and while wishing our readers a happy new year, we think we may fairly congratulate the great bee-keeping community on the progress that has been achieved during that which has just passed into eternity. The year will long be memorable as the most unproductive in the annals of apiculture; but its experiences, if rightly applied, will prove more powerfully than any words, that the old fashion (we cannot call it method or system) of 'letting alone' will no more apply to bees than to any other live stock kept for profit. It is well known throughout the kingdom, that, excepting amongst those brought under the influence of experts, there are few cottagers whose bees now alive will survive the trial to which they will be subjected during the months of March and April next ensuing. Too well is it also known that thousands of stocks of bees have already perished from starvation, or have been destroyed by their owners—martyrs to the fashion which has for ages ruled the ignorant, and led to the belief that in autumn certain colonies must contain an abundance of honey, and that to obtain it the bees must be killed. Trumpet-tongued, the *experience* of the past year breathes out in tones not to be mistaken the great truth which in *words* has been so oft repeated, that in bee-keeping for profit there can be no assured success where there is not a proper understanding of the natural history and habits of the bees, and a knowledge of the immutable laws by which they are governed; and it is on the measures which have been taken to promote a desire for this most useful knowledge that our chief congratulations hinge. The past year has witnessed the fusion of apiculture with agriculture and horticulture at vast gatherings, where, as well as at the great Crystal Palace shows, thousands of persons have witnessed operations in bee management which otherwise they would never have believed possible. They have learned what will induce them to unlearn all the absurd superstitions with which their minds have been fettered, and the pleasure and profit of their bee-keeping spoiled, and each one is now a witness to the truth. As a result of the good seed thus sown, local county and district associations are springing up, each of which will form a luminous centre from which intelligence will send its rays in every possible direction, illuminating its immediate neighbourhood, and creating a desire for enlightenment beyond, which must result in the general advancement of a science which, if well understood, would, by improving the mental and physical condition of our rural population, not only alleviate their pecuniary difficulties, and add to their resources, but would develope an industry which would add materially to the wealth and prosperity of the country at large.

That 'knowledge is power' is as fully exemplified in bee-keeping as in every other pursuit; for while we find the ignorant and the careless rarely successful, the educated apiarian invariably secures a fair, and often an immense, return for his outlay and his anxious cares. Were it not so, how can the results achieved by the numerous prize-winners at the late Crystal Palace Honey Show be accounted for? There, in the teeth of the difficulties of a season which to the uninitiated in bee-culture were insurmountable, advanced bee-keepers gave proof of their skill by the production of honey almost by the hundredweight, leaving their stocks still strong and well prepared for the winter; while the thoughtless and ignorant, taking no pains in the cultivation of their bees, found themselves not only without profit, but with their stocks dying of starvation, and their whole apiaries threatened with ruin. That associations are forming for disseminating apiarian knowledge must be a source of gratification to every thinking mind; and we most sincerely trust that the efforts of the philanthropic gentlemen who have voluntarily undertaken their management will meet with the hearty support they so well deserve.

The weather during the early part of the past month told heavily upon such stocks as

had not been prepared for its severity, the weak ones, as usual, being the first to succumb. Considerable alarm was in many cases exhibited by the appearance of a few dead bees, and some chips, like raspings, of comb on the alighting-boards; but these, as a rule, are healthy signs, showing activity and life within. It is only reasonable to suppose that some bees will die naturally every day; but only strong stocks maintain sufficient heat in their hives to enable their scavengers to thrust out the dead and the *débris* caused by the unsealing and cutting down of their honey-cells. In mild weather such *impedimenta* would be carried away, but in such bitter times as then prevailed they are content to leave them on their alighting-boards. Such stocks are sometimes jeopardised through the over-careful bee-keeper contracting the entrance to too small proportions, which will not permit the passage of a live bee laden with a dead one, in which case the entrance becomes blocked, and the stock endangered, not only from want of air, but through the excitement caused by the bees finding themselves in confinement. In view of this possibility, we recommend an examination of the entrances as often as is practicable, and the passing of a wire hook round the surface of the floor-board to clear away anything likely to cause obstruction; and in doing this, it often happens that the hook is brought into contact with living bees, through the cluster extending to the floor-board, when some of them rush angrily out of the hive and are lost. Stocks of this kind seldom require assistance in cleansing the floor-board, and provided their entrances be kept free, had better be let alone until stimulative feeding becomes necessary.

Dysentery in Skeps.—Having occasion to give the inhabitants of a skep a flight during the time the snow lay thick on the ground, we made a bag of white mosquito net about 4 feet long and 18 inches in diameter, open at both ends. This we slipped over the hive, crowding it down on to the floor-board, and tied the mouth of it to the middle of the skep; then, lifting the latter, the bees that attempted to fly were caught in the net, and those on the floor-board were likewise captured, while the net was tied like a sack at the bottom. The hive was then carried indoors, and suspended, and the warmth of the room soon caused the bees to make merry. When darkness approached the bottom of the net was untied, and the dead bees tumbled out, and then, by reversing the hive, the living were shaken on to the combs, and at night the stock was replaced on its stand.

Winter Queen Uniting.—Having some imported Ligurian queens which the weather would not permit of our sending to their destinations, we determined to use the net above described, into which to drive the bees to be deprived, that their queens might be taken away without loss.

The snow was nearly a foot in depth, but none had lodged about the hive or floor-board, and proceeding as above described, we were enabled to carry the stock into a warm room, where it was placed in an inverted position with the closed end of the bag suspended by a string which ran through a ring in the ceiling. A very little jolting caused the bees to gorge themselves, and when drumming commenced, they leisurely made their way up to one side of the net where they hung in a dark sheet, which swayed over the centre of the comb.

Moving the hive so that the cluster should come under the point of suspension, and slackening the tape round the hive we gradually, by pulling the string, raised the net a few inches, and with a feather passed under its loose side, caused the bees to disperse while we looked through the net for the queen, but found her not. Drumming was again proceeded with, and as the remaining bees marched up to join the cluster already in the net, the string was gently pulled and the net slowly raised, so that they spread over a large surface as they ascended, and her majesty having a long way to travel before she could hide herself in the main body was easily captured by the way. The net was then secured round the hive, loosened from the top and shaken to make the bees fall amongst the combs, and the hive suspended in its normal position until darkness came on, when the net was removed and it was replaced on its stand. The few bees left in the net were placed in a feeding-bottle, which was put over the feeding-hole that they might fall, as it were, into the hive and be saved.

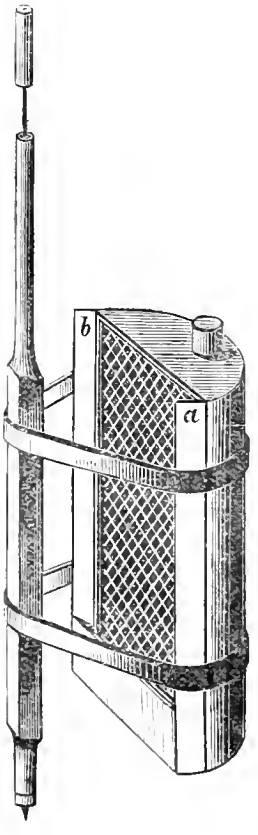
The next morning a cage of wire-cloth was constructed about 7 inches long, ½-inch wide, and ¼-inch thick, the bottom end of which was pinched to close it. The queen and a few of her workers (deplorable-looking after near a month in the importation-box) were placed in it, and it was closed at top with a cork and passed down between the combs through the top of the skep until its bottom end reached near the centre of the cluster. We thought it better not to allow it to reach lower, lest the queen might get to the bottom and become chilled and unable to get back again, whereas such an accident was less likely to occur at the top end. The top of the cage now protruded about 2 inches above the feeding-hole, and all round it barley-sugar was piled to cause the bees to gather round the cage, and to insure that the imprisoned queen should not

starve, which plan was found to answer, for she continued well, and after the lapse of forty-eight hours, during which she was repeatedly examined, she was released and was well received. During the queen's imprisonment the cage and barley-sugar were covered with a small dry flowerpot, around which cotton-waste was kept closely packed to prevent the escape of heat from the hive.

ABBOTT'S ECCENTRIC EXTRACTOR.—THE LITTLE WONDER.

At this season of mirth and festivity, when everybody is wishing everybody else a happy new year, 'and many of 'em,' we make no apology for introducing to the British bee-keeping public our last new baby, in the hope that he may come in for a share of the goodwill now paramount. He is a curious little fellow, not pretty perhaps, but has winning ways, although his movements are decidedly *eccentric*. A rumour that he was expected brought many inquirers, and we were always able to report that he was progressing favourably; and when he had grown into presentable proportions, and anxious friends were admitted, he was unanimously pronounced 'a little wonder,' because it was so great a wonder that no one had thought of him before. His visitor friends, and many who had simply heard of him, *almost* persuaded us to present him at Court, that he might be protected by letters-patent from the Queen; but although we feel assured that every loyal bee-keeper (and bee-keepers are essentially loyal) would be justly proud of the slightest mark of favour from our beloved Queen, we think they would prefer that it should not be bestowed in the way indicated, and therefore we offer the infant prodigy to our friends for adoption.

It can scarcely be supposed that so simple an instrument will displace every other extractor, but we have every confidence that the little 'whirligig' will do all that is required in many apiaries, and render more expensive machines unnecessary. As may be seen, the cage and can revolve round a shaft, the bottom end of which is furnished with a short spike, and the top with a long iron pin, which turns in a wooden handle; now, if an unsealed comb be placed against the wire-work, the bottom spike pressed perpendicularly on to a piece of board, on which the operator should stand, and with either hand the handle at the top be made to describe a small circle, the machine will begin to revolve, and with five minutes' practice may be made to describe from 150 to 200 revolutions per minute with very slight exertion. This, of course, causes the liquid honey to leave the cells on one side of the comb, when, still holding the machine with one hand, the comb is reversed with the other, and in another minute it will be found empty. The machine is then to be lifted on to a table, and set in a sloping position, the cork taken out of the bung-hole, and the honey allowed to run out into a strainer or pan, while comb No. 2 is being prepared. Should it be too thick to run freely, by drawing the wire-work out (the lower end of which is fitted with a suitable scraper) the whole can be drawn to the bung-hole and forced out. This form of slinger will meet the wants of all those who do not use frames of larger size than the Woodbury and Pettitt hives, and with the addition of a reversible folding wire cage, will suit every apiary in the kingdom where straw skeps are used. It is almost superfluous to point out the advantages of this machine, as they seem to us to indicate themselves. Nevertheless, we will mention, as of first importance, that with it a single comb may be relieved of its honey without the slightest unsteadiness, the pin in the board at the bottom, and the leverage at the top, enabling the operator to govern its action with ease. Secondly, that brood-combs may be operated on without being chilled through the circulation of cold air, a grave fault in all other machines, as the inner front of the revolver is enclosed by a sliding shutter, which slips down between *a b*, and having a small flap at the top effectually encloses the comb and protects it from outer influences. Thirdly, its smallness and portability: by making the shaft in three pieces, and covering the whole with American leather cloth, it may be converted into a valise, in which all other bee-appliances may be carried from place to place, and when done with can be stowed anywhere out of the way. It will also be convenient when a few pounds of honey are required from a distant apiary, as one or two combs may be extracted and their contents brought away secure from bees' attacks, and with scarcely any trouble. And fourthly, it can be adapted to the wants of any apiary, so as to render expensive machinery unnecessary,



as by removing the back or bottom of the revolver, and working it in a tub, it will be as efficient for its size as any other extractor in existence, whether worked by one man or two.

There are doubtless many ways in which the principle of the machine can be applied, which it is not our purpose to dilate upon here. Suffice it to say, that where great centrifugal power is required, an overhead motion can be obtained by hand that would almost 'extract' the teeth from a cog-wheel. We now merely hint that to obtain great power the 'revolver' should be placed near the top of a longer shaft to which a cord has been fixed leading over a pulley or branch of a tree, directly over its bottom point, and by which the obliquity of the shaft can be governed. A rapid motion may thus be obtained, describing circles of almost any diameter, and creating enormous power, adaptable to many requirements.

ABBOTT'S PRIZE-MEDAL HIVE OF 1875.

Having formed the skeleton of the hive, 'leaving the front and back walls exactly 17 inches apart at the top and 16 at the bottom, tapering, as shown p. 132, fig. 3,'* we now endeavour to complete the sides, which are at present single-walled, and shall then finish off the upper edges of the hive all round.

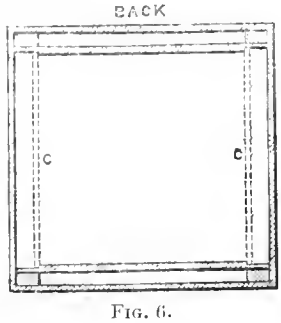


Fig. 6.

Fig. 6 represents a horizontal section of the hive in its present unfinished state, the air-spaces being shown between the inner and outer walls at front and back, and between the outer walls, H, fig. 6, and the dotted lines at the sides, which represent the inner walls C, fig. 8. Previous to preparing these the back and front walls require covering with pieces of

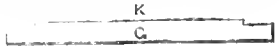


Fig 7.

¼-inch deal, of the shape of fig. 7, which if rounded on the edge G will form a bead and (to use a carpenter's expression) 'break the joint;' and strips ¼-inch thick and ½-inch wide should then be bradded on to the outer side-walls, to make them even with the front and back.†

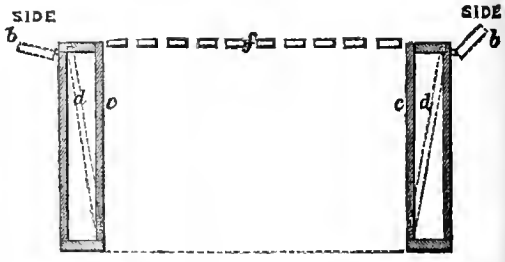


Fig. 8.

We have now to fix the runners upon which the frame-ends shall rest, and these may be of hard wood or vulcanite, as may be most convenient; we, however, have used wood as least likely to be broken, and the pieces are of oak or mahogany, 15 inches long, ½ inch high, and ¼ inch thick, fixed flush with and bradded through K, fig. 7. Two locking-pieces are now required

Fig. 9.

for the front and back, to receive the frame ends (which are pointed, as will be seen p. 132, fig. 2), each being of the shape shown in fig. 9, which is an enlarged illustration of A, fig. 2, as above mentioned. These pieces will be 15 inches long, and should be formed of wood a full inch square, one quarter of the substance being rabbeted out at one corner; the notches are right-angled at their base, and, like the frame-ends, should be cut true by the aid of a mitre-block, which will render them perfect and fitting, the outermost notches are, however, only ⅜ths of an inch from the ends of the pieces. When complete these should be hinged to the front and back of the hive on the pieces, fig. 7, at G, above which they will stand one inch; and it will be observed, by reference to fig. 3 (p. 132, November number) that when the frame *f* rests upon the strip which was nailed on to K, the locking-pieces *a a* will be, when closed up, flush with the top of the frame, which is correct. The moveable sides *c c* should now be put in, they will be 17½ inches long at the top, 16½ at the bottom, and should be cut about 10¼ to 10⅜ wide, so that when fitted, the top edge may be planed down to the level of the other top-parts of the hive.

* This sentence was imperfectly rendered in our last, p. 149, right-hand column.

† These latter stripes would be in *better* position if bradded to the bottom of the outer-side boards, and better still would it be if these boards were in the first instance 9½ inches wide.

Two pieces *b b*, fig. 8 (which will be more understandable by referring to B B, fig. 2, p. 132), are now required to complete (the body of) the hive; they will be about 21 inches long, about 2 inches wide, and a full inch thick, and should be fitted and hinged, so that when shut into their places they will lock the moveable side-pieces into their positions, and at the same time close up the side air-spaces.

Fig. 8 represents a perpendicular transverse section of the hive, by which it will be seen that *b b* when opened outwards allow *c c* to fall to the sides of the hive, giving immediate lateral space; and if the locking-pieces A, fig. 3, p. 132, be also thrown outwards, the frames will be capable of movement in any direction.

Fig. 3 shows how the floor-board runners *h* should be fixed below the hive, so as to admit of the wedges *g* being thrust between them (the runners) and the floor-board.

Fig. 1, p. 132, gives sufficient of the appearance of the hive to enable an amateur carpenter to make the roof and super-cover, and the floor-board; but when assistance is wanted it may be found in pp. 200, 201, Vol. II., a repetition of which here would be superfluous.

Before dismissing the subject, it may not be out of place to consider the relative value of the pointed and the wide-shouldered frame-ends, with which this hive and our frame bar-hive of 1873 are respectively furnished. The latter have had two full years' service and are everywhere pronounced excellent; hundreds of hives whose frames had been resting in notches or had been fitted with distance-tacks, or pins, now contain others on the principle we adopted two years since, which after long consideration Mr. Pettigrew deems (See *Journal of Horticulture*, Dec. 16, p. 545) 'the best, most simple, and easily-handled frames yet invented'—an opinion we consider of the highest value, coming, as it does, from a gentleman who had hitherto shown himself so distinctly averse to the bar-frame principle.

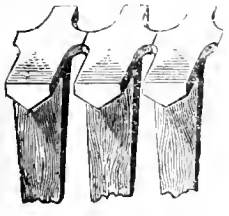


Fig. 10.

The broad-shouldered frames were adopted in 1874 by Mr. King in the Sherrington hive, and in 1875 by Mr. Hale in the Kedington, thereby greatly improving their already excellent hives, and we have little doubt but the principle will eventually become general. We have been favoured by the Hon. and Rev. H. Bligh, who has largely used hives with these frames (*see* p. 135), with a suggestion for their improvement. Instead of allowing the extremities of the bar to run entirely through the hive, Mr. Bligh would allow them to run only about half-way over the dead air-space, he would thicken the top bar for the sake of increased strength, and to prevent even a

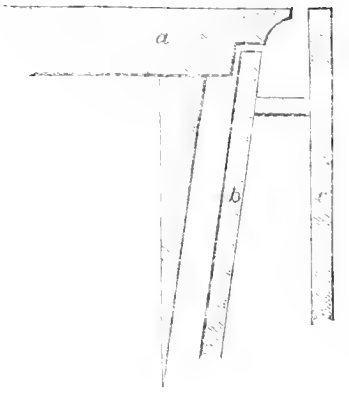


Fig. 11.

possible necessity for an adapting-board, but its ends he shoulders, as shown in fig. 11, to prevent longitudinal movements, and would carry up the outside front and back walls of the hive to the level of the top of the frames. The Hon. Vicar concludes, 'I think this hive, with your new dummy on one side, and provision for sections (with glass side for inspection) on the other, would be well-nigh perfect.'

The pointed frame-ends and locking-pieces are new, and have met with no friendly reception from a clique who only see by their own spectacles, one of whom has 'calculated' that in the prize-hive it will be necessary to break 49 feet 11 inches of propolis before it can be examined. The gentleman must be very truthful or he would have said 50 feet! There can be no question but that this latter arrangement gives most perfect command over the frames; they may be moved in either direction laterally, and the long ends afford a good means of handling them, and being devoid of the wide shoulders they would lie flat in an extractor, whereas the former would require indentations in the wire-work to receive them.

LONG'S HONEY-COMB FOUNDATION.

This wonderful American production far surpasses anything of the kind ever attempted in England. We have been favoured with a few sample sheets, which are of wax of the purest whiteness; and, in comparison with them, our best specimens of *impressed* wax-sheets are *nowhere*. In this new production the midrib, composed of the well-known lozenge-shaped plates (three of which form the base of each cell), is as thin and perfect as the bees themselves make it; but the walls—*the foundations* only of which are laid—are about ten to

twelve times thicker than the bees require them to be, but contain as nearly as possible the correct amount of material required to complete the cells. All the bees have to do is to soften the wall foundations, and elongate them; no time is lost in wax-making—the bees are saved that exhaustive labour, and their owner the excessive cost of the honey usually consumed in the process.

THE AMERICAN 'BEE-KEEPERS' MAGAZINE.'

By the courtesy of Messrs. King and Slocum, publishers, of New York, arrangements have been made by which orders, with cash, for the above excellent publication may be sent to our office, and the trouble of procuring foreign money orders avoided. The magazine is published monthly, and is devoted exclusively to apiculture. Subscriptions, including postage from America, six shillings and sixpence per annum.

ARTIFICIAL POLLEN.

Christmas Day, in the morning, was so lovely and bright that by way of experiment some artificial pollen was placed near the entrance of a busy hive; and although the bees did not attack it in the ravenous way they do in early spring, they were by no means indifferent to its attractions, and we had the pleasure of seeing bees 'carrying pollen' at Christmas.

When the early spring flowers appear, and the weather will permit the bees to take wing, Limmers' or Symington's pea-flour may be offered to them, with the almost certainty that they will greedily accept and consume it. In February and March early stimulative feeding will be properly in vogue, and the flour may be given freely, when the quantity the bees will convey to their hives will astonish any but those who have witnessed their activity when so engaged. In administering it, some yellow-deal-shavings cut up into shreds should be strewn on the bottom of any open vessel, and the pea-flour freely sprinkled thereon; the bees will then come, and standing on the 'chips' as upon the petals of a flower, will lick up the finest of the flour with their tongues, and pass it to their thighs, where, during short hovering flights, the bees will pack it conveniently by rubbing their legs together. Some writers recommend that the artificial pollen should be put into the actual flowers of the crocus; but there is no occasion for taking so much trouble, and incurring the risk which continued exposure of the pollen causes: and a caution in this respect is needed. Bees that are accustomed to obtain a daily supply of the flour will seek it early and late; and should a chilly afternoon succeed a bright morning, hundreds (literally) will be found chilled in the vessel amongst the chips. This may be prevented by removing them sufficiently early in the day, which cannot well be done with flowers. Should this *incidentally* occur, the vessel containing the chilled bees should be darkened and taken into a warm room, and the bees released the next morning.

COUNTY ASSOCIATIONS.

We have little information to impart hereupon. The various Committees are busy preparing circulars, prospectuses, &c., which are intended for free circulation. The International Fruit and Flower Show Committee have granted 200 feet of space for a honey exhibition at the great Show which is to take place at Dundee in September next; but at present they do not see their way to offering prizes. The energetic volunteer secretary, through whose representation the concession has been made, is busy beating up for help in his self-imposed task. It appears to offer a splendid opening for the Glasgow Caledonian Association, that will doubtless be appreciated.

CUPID AND THE BEE.

(*Translated from the Greek of Theocritus.*)

Cupid, his heart on sweets intent,
To rob the bees of honey went;
Putting his hand their cells among.
The god an angry inmate stung:
He blew his hand to ease the pain,
He danced, he stamped, but all in vain,
To Venus then his grief he showed,
Saying it did his temper goad,
That little insect as a bee
Should cause him such an injury;
His mother, sweetly smiling, said,
That he without good cause inveighed;
For, small himself, yet, like the bees,
His sting caused grievous injuries.

The study of the natural history of the bee is within the reach of every one, and he who is engaged in it is presented at every step in his progress with something capable of awakening pleasing emotions.

A lover of natural history cannot, I think, be a bad man, as the very study of it tends to promote a calmness and serenity of mind favourable to the reception of grateful and holy thoughts of the great and good Parent of the universe. He cannot be a cruel man, because he will be unwilling wantonly to destroy even an insect, when he perceives how exquisitely it is contrived, and how curiously it is made for the station it is destined to fill in the animal world.—JESSE.

A person was travelling with a team in the neighbourhood of Louth, when a queen-bee alighted upon his whiskers, and the swarm, keeping sight of their sovereign, soon alighted there also. The man stood still until they had all knitted together, and when at length they gently took their departure, it was found he had not received so much as a single sting.

Correspondence.

*** These columns are open to Subscribers, so that their queries, replies, correspondence, and experiences, may be* fully *and* faithfully *recorded; and for the discussion of all theories and systems in Bee-culture, and of the relative merits of all hives and appurtenances, that the truth regarding them may be ascertained. The Editor, therefore, must not be expected to coincide with all the views expressed by the various writers. All Correspondence is addressed to the Editor.*

HINTS FOR COUNTY ASSOCIATIONS.

The standard-frame question, which was started in the last issue of the *Journal*, will be an excellent subject for the members of the recently-formed County Associations to set their wits at work upon. It cannot be too thoroughly discussed by practical bee-keepers, and the sooner it is settled by the general committee the better it will be for us all. Everyone who has had any experience must have found the great inconvenience which frequently arises in consequence of the various sizes of the frames now in use, and must often have wished that some standard size could be adopted. The difficulty will soon be got over if the committee of the British Bee-keepers' Association can see their way to fall in with your suggestion, Mr. Editor, for hive-makers will speedily take the hint, and bee-keepers will gladly avail themselves of the change when giving new orders.

As there will probably be many gatherings of bee-keepers during the winter months, I would venture to make a few suggestions as to subjects for discussion.

If bee-keeping is to become popular and profitable we must have cheap hives and cheap extractors. Now in the rural districts labour is not so dear as it is in and near the metropolis and many large towns. It would be an excellent plan, therefore, for the district associations to procure specimens and such hives as the members generally approve of, and use them as models. Estimates would then be obtained from a number of sources, and as orders would probably be given for several hives at a time, the best terms could be taken advantage of. In order to enable cottagers to keep bees on the improved plan there must be a considerable reduction in the price of perfect bar-frame hives—I mean such as are fit to stand in open gardens or in allotment grounds throughout the year, and are provided with every requisite in the way of stands, covers, and supers. I am convinced that a considerable saving can be effected if some of the local committees will discuss the matter. The same remarks apply to extractors, but I have heard a hint that we may reasonably hope to have one offered, ere long, at about a third of the present price, thus affording another illustration of the truth of the old adage, 'Necessity is the mother of invention.'

One of the best means of spreading knowledge in the rural districts is undoubtedly by winter evening lectures, and it is to be hoped that such zealous bee-masters as have 'the gift of eloquence' will not be slow to use it in advocating the claims of their pets. 'The Pleasures and Profits of Bee-keeping' would make a telling line on a decent poster, and the theme is one which, if properly dealt with, ought to enable many persons to pass an hour pleasantly away. Perhaps before another winter sets in the Central Association might be induced to obtain a set of good diagrams and models from Germany for the use of those who wish to lecture on apiculture. It would be a pity, however, for the next three or four months to be allowed to go by without lectures being given, as hundreds of poor persons might thus be taught how to make a very welcome addition to their small incomes, without half the outlay required for a start in pig-keeping, and without half the labour which is requisite for the cultivation of an allotment. An enthusiastic bee-master could do much to promote apiculture by occasionally chatting on the subject with the cottagers in his neighbourhood who do not keep bees, and by pointing out the advantages of the new system to those who now are using straw skeps.

As the committees of many Horticultural Societies prepare their schedules early in the year, members of the local associations who think of holding their exhibitions in connexion with such societies in 1876 will do well to think over their arrangements during January and February. Bee-shows, pure and simple, would probably be failures in nine districts out of ten at present. Floral fêtes are, however, very popular, as most people love to gaze on forms of beauty, rich combinations of colour, and stages laden with luscious fruit. Moreover, such shows are generally held in the beautiful grounds surrounding some noble mansion, grand old castle, or stately ruin, and are rendered additionally attractive by the music of a good band. It would be far better, therefore, to share the glory of a flower show than to run the risk of failure by acting independently, especially as few associations will be in a position to offer such prizes as would attract bee-keepers residing beyond the limits of their own shire or district. On the other hand, as it would be the means of adding to the attractions of their exhibitions, many horticultural societies would gladly double the prizes offered by apiculturists.

As a good start is half the battle, bee-keepers should keep the coming shows in view in making their arrangements for next spring. By a little organisation a variety of hives, supers, extractors, and other apicultural appliances, could be exhibited at the flower-shows in each district. One would be able to exhibit a New Frame Bar hive, another a Carr-Stewarton, a third a Cottage Woodbury, a fourth a Slindon, a fifth a Cottager, and so on. After a time secretaries will probably be able to keep a register, containing entries of the various hives, &c., used by the members of their associations, and of cottagers and others keeping bees. This information would often be very useful for statistical, educational, and exhibitional purposes.

The rules of the various associations, published in the last *Journal*, offer many useful suggestions for our consideration, and will probably lead to a general revision some time hence. The offer of bar-frame hives to cottagers who do not kill their bees, as arranged in the Hereford district, is an admirable plan. Rule 8 of the Lincolnshire Association, as

to the purchase of bees and bar-frame hives to be drawn for by members, is a hint that will be taken in many other quarters, while their last rule is a summary of the most important work which district men should undertake. The sixth paragraph respecting the objects of the Devon and Exeter Association,—as to making arrangements to procure for members, at a small per-centage over wholesale prices, Ligurian and other bees, hives, and every description of bee-furniture—is an excellent idea. Their plan of admitting cottagers at half the ordinary subscription is also worthy of general consideration. —C. T.

JUDGES' AWARDS.

It is gratifying to find that your correspondents are hastening to express their sympathy for the Judges in this extraordinary affair.

Is it possible in our 'law-abiding country' that a man can be found to murmur against the judges of an Apicultural Show because their decisions are not given in his favour? and is the offender condoned by a committee of philanthropic gentlemen? Nay, is he rewarded with a silver medal? It is verily a proceeding that one might expect from a Society of Communists, but from a Committee of English gentlemen, alas! alas!

Seriously, Mr. Editor, it is always dangerous, and, I think, often uncourteous, to ask Judges to give reasons for their decisions. 'It is natural for man to err,' and I suppose that even our Judges are not expected to be infallible; but if an exhibitor of honey should think that his merits have not been appreciated, let him persevere and send another super to the next Show, and in this way obtain redress in a legitimate manner, without detracting from the general weal of the Association.

I feel sorry that the Judges at our late successful Show should not have been more honoured; but there can be no room for anger when both they and the Committee have doubtless acted from motives of sincerity.

Let us be loyal in the support of our officers, especially of the Judges in the discharge of their onerous and difficult duties, and with our motto, 'One and all,' let us really all pull together, and thus most effectually forward the good cause we have at heart, and at the same time obtain pleasure, *and not annoyance*, for ourselves.—Recte et Suaviter.

MR. FOX'S SUPER.

I intended to have remained silent under the rebuff administered by the Committee of the British Bee-keepers' Association to the Judges in Class 8 at the late Crystal Palace Show, but my two colleagues having spoken I feel bound to break silence. I do not regret acting as a judge, because the award given by me was made to the best of my ability, and was based upon calculations worked out in the short space of time allowed for making the award; and, in spite of the decision of the Committee, which virtually sets aside the award, I maintain it was correct; and from subsequent calculations made by me, I feel satisfied that, had Mr. Fox's super been opened at the Show, there would have been no after discussion as to the justice of the award.

Personally, I knew none of the competitors in the class, and, therefore, no charge of unfair selection can be laid at my door on that account; but I sincerely regret that the Committee have thought fit to interfere with the awards of the Judges, as it must lead to considerable difficulty in future years, because every disappointed exhibitor will feel justified in appealing to the Committee to review the decision of the Judges; and the only remedy I can suggest is, that the Committee should in future be their own judges, and a disappointed exhibitor will then, as he ought to do, only be able to appeal from Cæsar to Cæsar.—J. G. Desborough, 12 *St. Peter's Hill, Stamford.*

STANDARD FRAME—BEE-QUIETING—SECTIONAL SUPER.

Have a standard frame by all means: but would it not be possible to adopt one agreed upon by the leading authorities in Germany and America, as well as in England? It seems a pity to have one standard in one country and another close by; and although hives are not much bought and sold for importing or exporting, still as bee-keeping gains ground, this will be more the case than now, and any Extractor, or other invention, will be of use all over the world if it take the International Standard Frame.

I find the most convenient thing for bee-quieting to be simply a vesuvian, struck and at once inserted at the entrance of the hive. In order to save the floor-board a little tray of tin or zinc may be used to hold it, and if a handle be attached it can be easily and quickly pushed in. I treated a row of seven or eight skeps belonging to a cottager in this way not long since, and picked them up much to his astonishment, he had 'never seen bees handled like that before.'

It strikes me it will be a good plan to make the bottoms of sections for supers of two pieces, just like the top, then, by removing one strip, room would be given for bees to ascend at any desired point. If there is any fear of the combs being fastened down to the adapting-board or the frames, it might be avoided by making one strip narrower than the other, and leaving the widest.—H. Jenner-Fust, Jun., *Hill Cottage, Falfield.*

THE STANDARD FRAME QUESTION

The idea enunciated in this month's *B. B. Journal* of proposing the adoption of a standard bar-frame for England is one, the nature of which is sure to be welcomed by all who entertain a sincere interest in the progress of apiculture; nay, the existence thereof, once accomplished, may be viewed as a fresh inducement for a wider acceptance of the improved methods of keeping bees. In fact, the necessity for a uniform size was sure to make itself seriously felt from the moment a continuous intercourse among bee-keepers became possible; thanks to the bond of union which has been established by the happy appearance of the valuable medium, the

British Bee Journal. A fair appreciation of the advantages to be derived from a general adherence to a standard measure can be formed by any of us who may have watched closely the rapid progress made in Italy in the art of cultivating bees, where the *misura officiale*, as voted by a Congress, is strictly and cheerfully accepted by all. In fact, so much is this the case that great would indeed be the difficulty to dispose of either stocks or honey in combs for winter provisions by any one, whose measurement was to form an exception to the rule, for which there is no excuse whatever.

My object, however, is to call attention to the advisability which in my opinion exists for giving at once to this new and important step an International character. The measurement about to be established will, I think, greatly correspond with the one ruling in Italy. If so, by means of an Anglo-Italian standard-frame, the inconvenience caused to the bees by the necessity of transferring them from the Italian into the English standard frame, when reaching this country, would at once lose its *raison d'être*. Besides, this kind of operation is tedious, and like anything else requires time, and with bee-keepers time is 'honey.' Now, in presence of an increasing importation of Ligurian bees, the above suggestion may be worth considering. In either case you may make of this any use you may deem proper.—JOHN CAMASCHELLA, *Forest Hill, December*, 1875.

THE STANDARD FRAME.

Unfortunately, or perhaps fortunately, every man's skull is not exactly of the same size; and should the British Bee-keepers' Association decide upon a 'Standard Frame,' whose frame are they to adopt? Should any other size frame than my own be decided upon, it would result in a loss of 100*l*. at least. Therefore I do not consider it would be 'perfectly legitimate' to inflict such penalty upon me, and I cannot agree with the remark 'that there can be no hardship in the matter.' There must be 'hardship,' if it incurs loss upon any hive-maker. I have not time to go into the 'advantages,' which probably are many, but would they cover the loss occasioned by the change?—W. J. PETTITT, *Dover*.

The idea of a Standard Bar Frame I consider very good, and just the thing for bee-keepers who are continually buying and selling bees. I hope the Association will endeavour to carry it out.—A MID-LINCOLNSHIRE BEE-KEEPER.

BEE-KEEPING IN A COTTAGE—STANDARD FRAME.

A few miles from home I found a bee-keeper who has several stocks in an old cottage, upstairs; the bees pass in and out at the gable, and through apertures made purposely. Some of them had been there fourteen years, and had not swarmed, but he generally gets good supers. He uses chiefly straw skeps, one on top of another, and the entrance is in the middle, between the two. He says he never disturbs the stock-hives except in spring, to clear out dead bees, rubbish, &c., as, I dare say, it would be awkward for the bees to carry all the dead ones up from the bottom to the outlet. Do you think that is the reason that they do not swarm, going down so far below the outlet? and, of course, they do not get scorched with the sun. I daresay it would be a job for the queens to find their way out. The same man has one Woodbury Bar Frame Hive, but, he says, he has never opened it. I can tell you he gets some nice stuff off the tops; he showed me some. I likewise saw other bee-keepers during the two days I was out, and some of their bees were in fair condition, while others were deplorable—dead, and others next-door to it—no food; and when I told one they would be dead if he did not feed, 'Oh yes, they will if I don't feed,' says he; but I could see he did not mean to feed for all that. As you invite opinions about the size of frame, I would suggest a frame about 15 × 10 outside measure, though I only use a frame about 13 × 10.—JOHN WALTON, *Honey Cott, Weston, Leamington, December 8th*, 1875.

PECULIARITIES OF BEES.

Whilst on a shooting expedition in South Pembrokeshire, my attention was called to a piece of honey-comb, attached to a sprig in the hedge. After having cut the sprig down, I found that the bees had laid the foundations of two other combs. The hedge was much exposed to the cold winds, and the part on which they had built the extreme outside, on which account, I suppose, the bees had found they had made a bad choice for an abode, and so had forsaken it.—A. E. B. H., *Hunstadwell, Pembrokeshire*.

THE NEW BEE.

Our apiarian friends will be surprised to learn that the Americans have sent us a bee that will pull the sting out of the British bee and the Ligurian. It is the *Apis erudita*, or 'spelling bee.' The *Queen* (newspaper, not bee) tells us that Sir J. Lush went to see the Bee at Islington the other day, and came away a 'wiser man,' so he said. It is very possible. The Rev. Mr. Billing was the interrogator, and we hope it answered his purpose perfectly.

THE SEXES OF EGGS.

So long as the question of the parthenogenesis of the bee is destined to remain *sur le tapis* for want of conclusive evidence, any steps that may more or less tend to its solution are bound to prove interesting to all who long to see the matter disposed of on the strength of positive facts.

To that busy and most persevering Société d'Apiculture de la Gironde of Bordeaux is now due the credit of a recent experiment, the nature of which I think undoubtedly worth being recorded in the pages of your valuable *Journal*. Should you be of my opinion on this point, the following is a translation of an abstract, taken from *Le Rucher* for November last, page 319:—

'A difference of opinion having been expressed

by M. Brun and M. Dadant during the last sitting of the Society, as regards the sexuality of bees' eggs, the working committee has appointed a commission to inquire into the matter, and make official experiments. This commission is now at work, by which important discoveries have already been reported. So far, a hive has been repleted with drone-combs only, to the family of which a young, vigorous, and prolific queen has been united. After having refused to lay for fifteen days (owing probably to the lateness of the season), she proceeded to deposit eggs, which eggs, although in drone-cells, *resulted in worker bees.*' —J. Camaschella, *Forest Hill, Dec.* 1875.

BEES IN CONFINEMENT.

What do you think of the following plan for promoting early breeding ?

I am making a large glass box of some old sashes, &c., and am forcing some pots of crocuses. When they are in bloom I intend putting a hive of bees, a 'pic-nic' bottle, and some pots of crocuses into the box: when I expect the temperature rising from the midday sun will tempt the bees to carry in food and pollen, and commence breeding. The experiment might be tried on a smaller scale, by putting the crocus and bottle into a large glass super on the top of the hive; but as the bees, when taking food, must require relief I feared the space might be inadequate, and the mess might induce disease. If I find it answers I hope another year to make a glass bee-house, and put all the stocks into it. By the way, why would it not do for those having greenhouses to put their bees in for the winter, making the ventilating apparatus bee-tight ? Of course the crocus must be furnished with artificial pollen. What is considered the best to use ?—Y. Z., *London, Dec.* 15.

[We have little faith in the success of the experiment, but shall be sorry if our remarks damp the ardour of our anonymous friend (he forgot to send his name), as all such experiments fairly tried and honestly reported are valuable. The instinct of the bee teaches it to fly 'abroad,' and it is questionable if the excitement caused by the forcing process will subdue the natural disposition for roving. In America small glass-airing courts are used, which, as we make them out, are so arranged that. bees tired with buzzing against the panes, fall near the hive-entrance, and as darkness approaches are 'coached' into the hive by the inviting hum of the colony. Bees in greenhouses never do well; they fly against the glass, until tired, and then wander to death. Pea-flour is the best artificial pollen we know of.—Ed.]

WINTER PROVISION.

My bees are now all made snug and provisioned for the severe winter which *on dit* is to come upon us. I have seventeen hives, all of which I fed gradually during September and October, either by means of your feeders, or others similarly constructed of zinc. All my hives weigh from 20 to 30 lbs., nett, some in skeps, and some in bar-frame wooden hives. I secured the latter from cold (as they were of $\frac{3}{4}$ inch wood, and single-walled) something in the same way as you advised in November's *Journal.* I fastened strips of wood around the hives, top and bottom, and to these I secured, close together, the straw covers from wine-bottles, thus making a wall around each hive of stout straw-work, and leaving a space $\frac{3}{4}$ inch between wood and straw. I have followed your directions for top cover, using stout carpet, with a pad of hay uppermost, and plenty of room for the escape of vapour under the lid. Over all, outside the wooden cover, some stout asphalte, projecting well over every side of the hive. Besides the hives mentioned, I bought four strong stocks, with from 18 to 30 lbs. of honey in each, in straw skeps at a sale the last week in October. I had them all placed on clean floor-boards under a shed open to the air. November 4th was the first warm day with gleams of sunshine. I had made a hive as nearly as possible like to your Prize Hive at the last Palace Show; in fact, the only difference between the one I made and yours is that I have no vulcanite sheet for a divider. I was most anxious to stock this at once, and so seized this rare opportunity of a warm, bright day. I drove the two lightest stocks, transferred all the combs with honey into nine frames, cutting out the drone-comb; the empty frame I placed in the middle of the hive, and at night I shook out the bees on a flat piece of cardboard resting on the floor-board, which I let down an inch from the hive. I just escaped a great disappointment. I had suspended the sheet of paper from the beams of the shed; the roof was of thatch. I went out to see whether the bees had marched into their castle, when, behold! I found the two cords reaching to the roof turned into two pillars of live bees. I was but just in time: another minute or two, and my treasured thousands would have been located in the thatch above, and perhaps starved or frozen before I could have found means to dislodge them. I supported the cardboard from below, gently cut the cords close to the roof, laid each living rope on the card, and having learnt by experience my error, I 'lowered' the surface of the board, so that the bees could 'ascend' into the hive. I had placed it so that the card sloped downwards towards the entrance to the hive, and the card held by the cords being the higher one they had (I think I may here say stupidly, for they must have been shaken, some of them under the very combs, all streaming with honey,) all travelled in the wrong direction to the highest point, and failing to find a house there, had gone still higher, and in a short time, had I not visited them, would have mounted the cord into the roof. However, 'all's well that ends well.' The bees are in their new home with 30 lbs. of food; and a strong colony they are, the greater number being young bees, so that I look forward to great results from this hive in the coming spring. As I had none other wooden hives ready, the other two stocks are wrapped up warm and dry, and will be transferred in early spring into hives which I hope to make during the winter. To-day I have seen all my bees, including those from the new hive, busily engaged carrying in pollen from the ivy, much of which is still in flower. It is a difficult matter to get the cottagers to adopt any of what they call 'your new-fangled ideas;' but we must not despair. I have already got two working men to cut holes in the tops of their skeps

and to feed up their starving stocks sufficiently to stand a long winter. The father of one of these men has kept bees for forty years, and yet laughed at his son for trying to feed his own hives with a bottle. The same young man came to me yesterday to ask where the bees got the 'yellow stuff' which they were carrying into the fed-up hive. I told him that it was the pollen from ivy-blossoms, and that it was being stored to feed the young bees in early spring. He said, 'Well, sir, I came to ask you, because father says that he is sure my bees are robbing his, as there is nothing for them to get out of doors this time of year, and his bees are not carrying in any.' This is an example of the total ignorance of bees and their habits in a man who has kept and burned in his time hundreds of stocks. Let us hope that such ignorance will be no more known in the next generation. Let me not trespass more on your valuable time, except to say that I have found your steel gauge an invaluable assistance to me in making my bars and frames.—P. H. Philips, *Offley, Hitchin.*

HIVES, &c.

With reference to your Model Hive, allow me to suggest an addition which I have found very useful in my own, viz., a shelf on the right side of the hive, as you stand at the back of it. It should be of ½ in. board, 9 in. wide, hinged to the outside wall just above the bottom rim and falling between the legs. It should have a strengthening-piece at each end, on the under side, shaped so that when put down from the side of the hive they will form brackets to support the shelf square with the wall of the hive.

In attending to bees, one always wants a place on which to place feeder, smoker, matches, &c., and this should be as near to the hive as possible. When closed, a small button on the top-rail keeps it secure. It should, of course, be well varnished or painted. I do not see anything else required to make the hive as complete as possible.

You have not yet mentioned the mode of wedging up the floor-board to the bottom of the hive; that I think does admit of improvement, as the operation requires to be quickly and noiselessly done. I tried it by having thumb-screws from a rail runner back to front of the hive, but that is too slow. It seems to me that what is required is a central lever working four arms, the same as we see in some of the iron safes, by which four bolts are thrown from the door into the sides by one turn of the key: but I do not yet see my way to manage it nicely.

Excuse me thinking that making the floor-board reversible is not the best plan. However dry the stuff may be, even with mitred edges, they will warp. An inch strip 2 in. wide, well screwed on the under side across the grain, at all events reduces this risk to a minimum, while to have two floor-boards for each hive, to be changed when required, is no great expense.

I think your proposition for a standard size of frame a very good one, but I doubt if every one will say there is 'no hardship' in the clause as it stands. Would it not be better to make the condition prospective, so that the makers of hives of different dimensions to those adopted may have time to conform to the new rule, and all start fair, which would not be the case if (as most likely will be the fact) the scale of a present maker should be selected to come into operation at once, and which would, also, exclude many hives now being worked? The poor bee-keepers will have trouble enough before next Show, without adding to it. The season of 1877 would, I should think, be early enough.—T. H. Stevens.

INTRODUCING LIGURIAN QUEENS.

The following successful plan of introducing Ligurian queens to black stocks may possibly be of interest. For any one who can work with bees at all can in this way join a Ligurian queen and all her attendants to a black stock, with full prospect of the union being cemented in bonds of unity for life.

When the box containing the Rhœtian beauty and her 'golden-banded' suite comes to hand, dethrone her sable majesty in the usual way by driving if in a skep, by lifting out the frames if in a bar-frame hive, and give the bees a good sprinkling of thin sugar syrup scented with essence of peppermint, and close up the hive. At a window in the inside of a room take the top and bottom of the little box in which the Ligurians are; lift out the frame, and cage the queen with one or two attendants on the comb in one of the square zinc cages.

With a slip of paper the queen can be confined in the cage without handling or touching her, and I need scarcely point out the necessity of using all precautions with one to whom you are looking for 'great expectations.' An expert bee-master can catch and handle queens without any fear of injuring them; amateurs will in nine cases out of ten injure a queen in catching and putting her in a cage, and he will always blame something else for perhaps her after-unproductiveness or early death. Now have ready two pieces of perforated zinc a little larger than the box; lay one piece on the underside in place of the bottom, put the frame of comb with the queen on it, back into the box, and wait a few minutes till the most of the bees return, or pick them gently off the windows, and when they are all in the box with their queen, place the other piece of zinc on it for a lid, pressing a small tack at each corner; then carry it to the hive and place it on the hole in the crown-board quilt or top of skep. Invert a bottle of scented syrup on the perforated zinc just above the part where the queen is; wrap round box and bottle a piece of cloth and cover with an old skep. At the end of ten or twelve hours the blacks will have missed their queen, and now is the time to draw away as gently as possible the piece of perforated zinc that separated them from the Ligurians in the box. They will quickly ascend with mirth and gladness to find their foreign sisters with the all-important sovereign and abundance of food. Keep up the supply of it a day or so longer, then you may safely take the cage off the queen and allow her to go down into the hive. Twenty days afterwards, if in a bar-frame hive, you may be able to see the young Ligurians emerging from their cells.—J. S. *Arbrouth.*

LIGURIANS—ASSOCIATIONS—THIN HIVES.

I hope you have space in your valuable *Journal* for a word about the Ligurians, although no one can doubt but this spring will find our stocks short in numbers—English and Italians sharing badly from last summer's wet. I took a Ligurian stock into my house on December 6, thinking the frosty, hard weather would find out the half-inch hives; but, to my surprise, no sooner had I put the stock down than the bees came out in great numbers, and I had to immediately return it to the garden. They are still the heaviest and busiest, but we hardly like to speak too well of foreigners. I hope some one will give them a fair trial in 1876.

I am, also, pleased to read of the County Associations; but is there no gentleman willing to start one for the county of Hampshire, which I believe to be second to no other county in England for honey, both for quantity and quality? If the agricultural district of Mid-Hants, with its fields of beautiful sainfoin, fails, then we can look south over the New Forest, around Beaulieu, Brockenhurst, and Lymington, where tens of thousands of hives ought to be kept by cottagers, or by some enterprising gentleman. I should think there is some one in Winchester who would undertake to start an Association for Hampshire, or a special delegate from the London Association might start for the counties. The headquarters of the Hampshire Association I think should be Winchester or Southampton. I think a wider circulation of the *Journal* is very much needed to start the County and Local Associations.

I may say it was a very cold room into which the Ligurians were put, and not a warm one. I hope for more sunshine next year for our little pets.—Abel Whithorne, *King's Somborne, Hants.*

BEE-KEEPERS' SHORT HAND.

'Minnie dear, can you tell me when I last examined this hive, and what the state of it was?' may often be the question put by a father to his daughter who is standing near while he is intently examining a hive. The only answer she can give, perhaps, is, 'No! but why did you not note it down at the time, father?' 'If I noted all I notice in the hive I should require a secretary at my elbow every time I look over them!' Many, no doubt, have felt this want of a secretary to note down pages of observations that interested, and which to do themselves would make their bees a toil instead of a pleasure; but much writing is not necessary where there is a system adopted, therefore I think the following Code of Bee-Keepers' Short Hand may be useful to many; but before giving this Code I may draw the attention of many bee-keepers, more especially breeders, and those suffering from the ravages of foul brood, to the advantages gained by numbering their hives, by cutting in, stamping, or painting the number on every hive, and this number to be in Roman figures, I., II., &c., whereas a loose or moveable plate, or number, to be attached also to each hive, stamped with the ordinary figures, 1, 2, &c., this number is that of the colony, or family, in the hive, every one will at once see the advantage in this in cleaning hives and uniting colonies.

Bee-keepers' Short Hand.

\+ means that something is added, or given, or brought in by the bees.
− that something is taken away.
÷ that something is divided.
V a queen.
□ a queen confined in a cage.
Λ a queen released from a cage.
Q a hive is in a doubtful state, and requires seeing to.
U a queen-cell containing a young queen.
∩ a queen-cell out of which a young queen has emerged naturally.
ʃ a queen-cell from which the young queen has been extracted.
Æ an impregnated queen.
Œ an unimpregnated queen.
N that the hive has been examined and no queen or egg found.
NE that the hive has been examined, but that eggs were found, showing that there is a queen, though not having seen her.
NF that the queen has been probably lost in her wedding tour.
H that there is sufficient honey in the hive − or + added or taken.
HL that there is too little honey, therefore it requires feeding.
B that there is brood enough or filled brood-combs.
F frames, bars, or combs.
T a trial comb, or that a comb has been put in containing female eggs to see if the bees will raise a queen.
⊙ that foul brood is in the hive.
◯ that a hive has been examined and is in order.
: : : that there are bees enough, a strong hive, or swarm.
. ˙ . that there are too few bees.
S^4 a this year's first swarm, or foreswarm; when a number is written with it, it denotes the swarm's weight as four pounds.
S s a second swarm.
② a cast, the number being written in the centre of the letter.
O″ it is not known, or is doubtful, if the queen is impregnated.
P pollen.
W water.
D drones.
DS drone slaughter has commenced.
$\frac{VIII}{6}$ shows how hive and colony number should be written.
$\frac{21}{6}$ shows how dates should be written.
To denote age it should be written over, thus $\overset{2}{V}$,
To denote number, or weight, at right hand, thus U^4 S^3.
To denote size, at the left hand, thus ^2U.
| a line denotes the separation of days or examinations.

As an example of the use of this mode of shorthand, the following hive's history may serve to show how the stock-book is kept :—

Hive, No. 9. No. $\frac{IX}{13}$ Colony, No. 13.

1873. $\frac{15}{6}$: : : S^4 from No. $\frac{VIII}{6}$ V | $\frac{8}{8}$ − H^8 | $\frac{16}{9}$ ◯ H^{25} | closed for winter.

1874. | $\frac{16}{5}$: : : HL | $\frac{18}{3}$ + $H^{2\frac{1}{2}}$ | $\frac{8}{4}$ + H^2 | $\frac{8}{8}$ − DF | $\frac{0}{8}$ − H^6 | $\frac{13}{6}$: : : + F^4 | $\frac{18}{6}$ F^6 ◯ | $\frac{22}{6}$ F^4 | $\frac{26}{6}$ − B^2 to $\frac{XI}{27}$ U N | $\frac{27}{6}$ ∩ | $\frac{30}{6}$ Œ | $\frac{8}{8}$ − $H^{9\frac{3}{4}}$ | $\frac{29}{8}$ − $H^{12\frac{1}{2}}$ NF : : : + T from $\frac{V}{16}$ | $\frac{31}{8}$ + T | $\frac{14}{9}$ + V | $\frac{15}{9}$ − V Q no time to-day | $\frac{31}{9}$ N . ˙ . D bees deserting − H^{12} and divided the bees between $\frac{VIII}{6}$ and $\frac{XI}{27}$.

Thus it will be seen that the year's observations of a hive do not take up so much space when these or other symbols are used, and the whole history of the hive can be read off at a glance nearly.—J. S. Wood, *Nyborg.*

BEES IN CAMDEN TOWN.

In answer to your correspondent, 'A Novice,' will you allow me to tell him that I have kept a hive of bees for the last five years in my garden in Oakley Square, N.W., but under very great difficulties, having in each successive year been obliged to feed them with about fifteen pounds of honey, or barley-sugar, and occasionally, during a continuance of wet weather, with loaf-sugar syrup. Only by these means have I been enabled to keep them going; but they have not once swarmed, or appeared likely to do so, during the whole of the five years. I would advice a 'Novice,' if he has any friends in the neighbourhood of either Highgate or Hampstead, to persuade them to let him keep his bees in their gardens, and he will find, as I do, much greater and more satisfactory results. I cannot refrain from expressing to you my amusement at the enthusiasm which induced you to suggest the sowing of white clover-seed in Regent's Park; the advice is no doubt very fine, but by simply scattering I fancy the London cock-sparrows would not leave much of the seed to grow for the benefit of Cockney bees.—Chas. H. Edwards, *Dec.*, 1875.

HOW TO PREVENT CASTS.

I am sorry to have placed myself at the disposal of the County Associations, although I did so with the best intentions. Having been very ill in autumn, and now away on the Continent, I fear it will prevent a Yorkshire Society forming at once, and I grieve to think that the work I wished to forward may be seriously retarded. If you will kindly withdraw my name I have no doubt an abler and more energetic gentleman will be found to undertake the formation of a society which may have been delayed through my illness. The closer ties of bee-keepers in Yorkshire have already been seriously checked in so large and important a district. Yet I have wished it every success.

On receipt of your capital Leaflets I drove six of my hives, after your directions on open driving. I picked the queens out of all, as they ascended, and your six Italian queens were joined to the old hives and the bees returned. I had rescued these hives, as detailed in your August number, from the sulphur-pit and the ignorant cottagers; they have been to the Moors, at a cost of 2*s.* 6*d.* each, have now had the queens exchanged, and next spring every one of them will be an Italian stock, worth all the pleasure they have given me, in value a great deal more than the cost, and little trouble. Independently of all this, the saving of their valuable lives. So much in favour of 'prevention of cruelty to animals.'

My subject this time is, 'How can we prevent casts, sops, or virgin swarms.' Seldom do these do any good for themselves; they always weaken the old stocks or swarms. The first swarm leaves the original old hive; when (more or less) queen-cells are ripe (of age), the old queen leaves with her subjects for a new home and swarms, then a young queen becomes the rightful sovereign. Her first act is to go to those queen-cells still sealed up and remaining, which also contain young queens, nearly ready to emerge, and to destroy all these, excepting those of later date, not yet sealed over and not so far advanced—say four or six days old. During the following days young broods of bees leave the cells by the thousand daily, swelling the population. The ninth or tenth day after the swarm has left, which is the sixteenth or eighteenth day after the queen-cells (those just referred to as not destroyed) have been begun, people look for a cast or sop. The now older queen, then hearing a rival piping or calling in these cells, leaves the hive with a cast, thus weakening the stock, and the number of bees being split up between them, often, or generally, neither the one nor the other does much good. They swarm too much then. The hives would be better in autumn for wintering had no cast come, more honey would have been stored by the more numerous population, and the waste of time and labour of building comb would have been saved and the weakened stock-hive would have been heavier in honey, stored in the best honey season. The cast has to build new comb first: the queen begins breeding in this at once, and by the time the honey season is over, young brood has to be fed, and the new comb just left by the brood remains empty; the honey season is over, and the consumption by the brood, now very considerable, the want of honey keenly felt by the bees induces robbing, and is followed sooner or later by starvation. The old hive, also, is too much weakened. If no cast had left, it would have had the undivided strong population to gather and store in the now empty cells of the old hive, without wasting the golden honey and time by comb-building.

To prevent a second swarm, we used to destroy the queen-cells before the eighth day after the swarm had left; but if a single one had unfortunately been overlooked, disappointment and a cast would come again in spite of our vigilance.

Herr Gravenhorst, who has already often been referred to in the very excellent translations by a 'Country Doctor,' the same who introduced the straw skep with moveable frames, so much praised and admired by our Continental friends in Germany, has, by his grand invention, shown us how to prevent a second swarm. I state here only what I have first read, then seen, tried, and highly approved in my own sixty hives. I don't allow swarming, but was not *always* successful. Sometimes a cast will come, in spite of artificial treatment, when we have either overlooked one of the queen-cells (a single one is enough), or a swarm comes off sometimes when the bees mistake the matrimonial flight of the young queen, and follow her. Now, after the first swarm has left, or an artificial swarm been made, Herr Gravenhorst's advice is: Put it (the swarm) upon the old place (the old queen and bees); then divide the '*old*' original hive by a division-board in two equal numbers of brood-combs, other combs, &c., with all the bees attached to them, giving each a separate entrance and alighting-board; then join to each respectively an already advanced queen-cell, or, better still, a young queen, and supply water until the young brood can fly out for it. The old hive thus divided into two colonies, which work independently, on account of the smallness of their number will not swarm again: they build worker-comb only, and continue the labour and each queen her breeding. If desired, they can

easily be again united in autumn, or the two small populations may be separately wintered in the same hive. Is the weather favourable, each of them, or both in one, will work and gather sufficiently to be a good heavy stock to stand the winter. The idea of swarming is altogether abolished in these small colonies, and the queen, as soon as she leaves her cell, goes her round and destroys all remaining queen-cells. You obtain either one strong stock or have two colonies, each with a young queen to winter.—John G. Kirsten.

A SUGGESTION.

May I venture to make a suggestion, which, if carried out, would probably relieve you of some of your voluminous correspondence? Would it not be advisable to publish a list of persons who are subscribers to the *Journal* and members of the British Bee-keepers' Association? These could be divided into classes, after the plan adopted by the Phonetic Society:—

Class 1. Competent bee-masters, who would gratuitously advise such amateurs as are subscribers and members, as before mentioned, when they are in difficulty on receipt of a stamped directed envelope.

Class 2. Bee-keepers, who would be willing to show their apiaries, appliances, &c., but who are prevented by other engagements from conducting correspondence on the subject.

Class 3. Persons anxious to spread a knowledge of bee-keeping on the humane principle by means of lectures, pamphlets, &c.

There could be other classes, say one for manufacturers of hives and bee-furniture; another for persons simply keeping bees, &c., as this would make the list a kind of Bee-keepers' Directory, and would, in time, enable most of us to become acquainted with persons in our own neighbourhood who keep bees, or take an interest therein.

There should be a registration fee in the third class, and such others as would be to the advantage of those entering. The money thus raised could (after deduction of necessary expenses) be devoted to a Journal or literary fund, or to the Association; and it should be distinctly understood that only those on the list would be entitled to have questions answered.—Tauntonian.

BURYING BEES.

A few years ago a bee-keeper in the village of Stenton, near this, was consulted by a neighbour as to a hive which was found very ill prepared for winter when October days were closing in upon it, and he recommended burying it. So it was placed on the ground in the garden, a small wisp of clean, well-drawn straw, inserted into the mouth, and laid out to project from below the covering. A good covering of loose straw was then put on, and finally the earth was heaped over all, and finished off like a small potato-pit, and it was left thus till March following. When the pit was then opened, as soon as the hive was touched, the hum of the little garrison proclaimed, 'All here and well;' and the hive did well the following summer.

Neither the bee-keeper referred to, nor the owner of the hive, have however ever repeated the experiment, and most will continue to hold that both bees and bee-keepers should have their dwellings above ground.—Thos. Buchan Sydserff, *Ruchlaw, Prestonkirk, Dec. 7*, 1875.

AN ESSAY ON FOUL BROOD—ITS CAUSE AND CURE.*

PREFACE.

In setting forth this essay before the public the writer has not made any attempt at fine literature, figurative or flowery. Indeed, it would have been presumptuous to have done so, because he is quite inadequate for the task, being what many of our Southern friends would call *an original*—nay, a rustic; and the attempt on his part has been more for the diffusion of knowledge than to carry off honours at an international competition.

Still, he knows that his little work will not go for nothing, because it contains the practical results of a succession of experiments, which he has given in as lucid a manner as his stammering pen will allow, so that, although he does not expect to receive public honours, he comes boldly forth to give his experience to stimulate others to the task of removing the plague from amongst the most beautiful and useful insect pets that God has given to man for his use. May it, then, have the desired effect.

Foul brood is a disease which attacks the larvæ of the bee about the time of its change to the nymph state. Notwithstanding the common occurrence of the disease, it is much hidden in mystery. Mysterious as the internal economy of the hive was, that problem has been already solved; but the diseases which attack these insects have as yet never been properly understood. From the symptoms shown in the human, we can, to a great extent and exactness, tell the disease and prescribe the cure; but the insect, from the moment the egg is laid until its evolution, is a hidden mystery. We know little what are the means that bring forth the perfect insect, or what is the cause that it should exist only for a few days in the worm state. We know that the size of the bee, when emerging from the cell, is larger than the food it has consumed. Can it then be that the want of sufficient food will cause the brood to be abortive? Nature has here provided for that contingency, in that bees will neither allow imperfect bees nor brood in a hive. Many other questions might be asked, such as,—Has cold or untimely feeding anything to do with it? Improper covering to the cells or the want of saline particles,

* Written for competition by 'A Lanarkshire Bee-keeper,' for the British Bee-keepers' Association, Crystal Palace, London.

etc ? All of which may be answered in the negative.

But in order to elucidate under what circumstances foul brood makes its appearance, its cause and effect must be traced. Therefore we must first show under what circumstances foul brood makes its appearance in a hive. There is one question of great importance with which we ought to make ourselves acquainted on the subject of foul brood, that is, what change does the food undergo in a foul-broody hive ; whether does it lose or gain ; and what is the loss or what is the gain ? The principle of change resides in matter, and bees and the food of the bees are matter: consequently a change is liable to take place, and doubtless does take place.

Under what circumstances, then, do we find foul brood ? First, if a foul-broody hive exists in the neighbourhood, and it be allowed to stand until it dwindles away and dies, the neighbouring bees will attack the diseased hive, and rob it of what honey it has left; and the disease will thus be communicated to the hive of the robbers, and in a short time the once healthy hive will be suffering from the fatal poison, thus proving that the disease is infectious, or catching. The foregoing example may be said to be the more mysterious, because the bee-keeper remains unconscious of what is going on until he finds his hives dwindling and inactive.

The last case of foul brood the writer of this had was as above. Thus it will be seen how careful bee-keepers should be not to allow a single affected stock to stand, nor to allow any of its contents to be taken to another hive.

Although I am certain that cold does not propagate foul brood, as may be learned from the fact that I ventilate my stock-hives during the hot weather, and if neglected when cold occurs no symptom of disease shows itself: on the other hand, I have had cases of diseased brood under peculiar circumstances that might be taken for chill. These were in weak hives, where the proper uniform degree of heat could not be kept up, and almost the whole of the brood was abortive, and appeared to the eye and scent foul brood; but the difference in these from some diseased stocks (where the honey was sealed up and dry) was, that the affected cells could be excised, and a swarm of bees added to them in which the disease would not appear. In such cases of foul brood (?) some bee-keepers maintain that the disease is not infectious, and, as I have proved, it is not. Still, I would not recommend hives under the same state to be tampered with, because no doubt the disease was there, but had not been developed further than in the diseased cells, and was caused by the bees not maintaining a proper heat to prepare the food for the larvæ. A certain heat is no doubt required for the bees to prepare meat for their young, and if it be given in a crude state, doubtless it will prove hurtful.

Foul brood follows in a very deadly form if a hive is not able to preserve its honey from fermenting, and in cases of this kind nothing short of a total destruction of the comb and its contents will stamp it out; and it is useless preserving the bees, unless their stomachs can be completely emptied of all the honey, which may be done by placing them temporarily in an empty hive, and causing them to build comb. Overheating will also bring on the disease in its most deadly form. In fact, overheating and allowing the honey in a hive to become so cold as to cause fermentation are almost synonymous in their effects, and produce the disease in the most virulent form ; nay, I have experimented, and found no difficulty in causing foul brood when combs containing this (fermented) honey were given to bees. As a proof that overheating is one great cause of foul brood, I may state that I used to be in the habit of taking my bees long distances by boat and rail to the heather; and although I ventilated well, I was unable to control the stifling they endured when packed in a railway van or placed on the crowded deck of a steamer; and although for some years I had been very successful in getting large hauls of honey, in course of time I was unable to keep up my stock, and latterly had to abandon going to the heather for want of bees, my stock being reduced to one hive. Gradually my stock began to grow again, with the disease now and again reappearing, until I started with a new set of hives entirely, and putting every hive I already had through a cleansing process; and, save the one hive that has been already mentioned, my apiary has since been entirely free from disease.

So high is it in its impregnating character that boiling does not destroy the virus, which can be proven by taking the honey from a diseased stock, and feeding a healthy one with it, foul brood will follow in a short time. This I have proven over and over again, and so great is its reproductive power, that a single drop of diseased honey will contaminate many pounds' weight of it, if the following experiment can be relied on. I took two vessels containing sweet milk; the one I left alone, the other I impregnated with a small modicum of the virus of foul brood, and the latter underwent a change daily until it had formed itself into a putrid mass, with a smell not unlike foul brood, and the surface covered with a fungus like a vinegar plant. All this time the unimpregnated milk underwent the change only commonly seen in lappered or soured milk prepared for churning.

Seeing, then, that the disease is so easily conveyed from one stock to another, and to other substances as well, it is a proof that the disease may be caught in different ways. Still, the chances are much less in the latter than in the former, as the fungus will not reproduce itself so readily on foreign matter as on what is native to the bees.

It will be observed from the foregoing that fermentation produces the worst form of foul brood ; therefore it is incumbent on the bee-keeper to strictly guard against anything that will cause fermentation, either through feeding, overheating, or extreme cold.

As will be seen, I have given my evidence in an experimental way, showing in what manner foul brood is propagated, and under what circumstances it has appeared. To say more on the matter would be a work of supererogation. If we can trace the cause, we ought to be able to say something on what will effect a cure. Before doing so, however, I must mention a fact that occurred several years since,

which was in a letter that appeared in the *Journal of Horticulture* on Foul Brood and Fungi, by Dr. Preuss, a German sanitary doctor.

There was a singular coincidence in this gentleman's letter with one I wrote to Messrs. George Neighbour & Sons, 149 Regent Street, London, some years previous to the time Dr. Preuss's appeared in the *Journal of Horticulture*, and although my article may appear like plagiarism, the sum of it was word for word. But the mind may be relieved from this by applying to Mr. A. Neighbour, who, I am sure, will explain how it occurred, and that it did occur.

Foul brood is said to be of two kinds—one curable, the other incurable; but I do not believe this. *There is but one form of foul brood.* Whatever is termed curable foul brood is neither more nor less than chilled brood, and is at all times easily managed; and at no time does it develope itself into virulent foul brood, unless it may occur in the same manner as I have already described, when bees are unable to prepare the meat in a suitable manner for the young, and when the adult bees lack a proper degree of heat; and in this case excising the brood-cells will exterminate the disease.

Foul brood proper, when fully developed, has a highly disagreeable odour, with a perceptible clamminess on the combs; the coverings of the cells become concave, with minute perforations, probably at those parts of the cells that contain matter liable to the attack of the fungi. When the seals are removed, the dead larva is found commonly on the lower angle of the cell, and adhering to it as if fastened by glue; indeed, the remains of the insect in this state are of a very sticky nature, showing the appearance of much albumen. If we examine the larvæ before death, many are found much inflated, and this shows that gases are generated in the body of the larvæ, doubtless causing writhing pains or convulsions. As we find many of the larvæ inverted in foul-broody hives, probably owing to the twitching that may be caused through pain or convulsions, and which may cause the larva to alter its true position, it would be interesting to know whether, if the brood was fed with food free from foul-brood virus and placed in a diseased stock, the fungi would attack the larva in this case. I have repeatedly tried this, and the bees always hatched out. It is the case that many cells, even in the worst hives, hatch out, while in the very midst of the dead brood; and may this not be owing to the fact that they may have been fed with honey free from the fungi?

While I have been unable to effect a cure so long as honey remained in the hive, I have never found any difficulty in arresting the disease with empty combs taken from an infected hive; and this I never scruple to do, but I am very careful to put them through the process which I will hereafter describe.

Whenever a hive is known to be attacked with foul brood, the best way to do is immediately to remove the queen (if a valuable one), exchanging her to a hive with a worse queen, which latter may be destroyed. Allow the diseased stock to hatch out all the brood that it will. By that time probably a young queen will be hatched also. Turn the bees out, and consign the contents of the hive to the melting pot; put the bees into an empty hive, allowing them to remain for several days, until the whole of the honey in their stomachs is spent; then change them into their permanent hive. This plan has been recommended by the late Mr. Woodbury; but unless the stock of bees is a strong one it is not worth the trouble.

Probably a better plan is to turn the bees and queen out at once, and put them through the same process of quarantine, then put them into an empty hive or strengthen a weaker hive with them.

It is an easy matter to transmit the disease from one hive to another, but it is not so easy to get rid of it; and perhaps the best way after all (so far as we know yet) is to stamp it out. We know that foul brood will appear in a hive and in a few cells only, and not extend farther; but this can be accounted for by the fact that a few cells only of honey may have contained the virus, and that, probably owing to circumstances, these and adjoining cells may have been sealed, and never more used for the food of the larvæ. As it has been already proved that the food, and not the combs, is the direct cause of the disease, combs that have not contained honey can be more safely used than those that have, because it is like putting wine or beer into dirty bottles, or containing the fermenting fungi, and when once in one cell it rapidly spreads to another.

The only method I have found effectual in destroying the fungi and being able to use the combs with impunity, is to bake them in a dry and moderately warm oven for a lengthened time, or over a stove, where fumes of charcoal are emitted. Empty combs from a diseased stock I have found effectually cured in this manner, and have at this present moment combs eight or nine years old in my apiary and no signs of disease. The propagation of the fungi can be easily done by placing a quantity of the honey in an open vessel, and allowing it to ferment.

I have, at various times, and under different circumstances, impregnated hives with foul brood, and have invariably found traces of the disease in about three weeks, and often fully developed in six; but in some, owing to circumstances, have found it retarded for some months ere it showed itself in a malignant form. Moreover, I have transferred bees from an infected hive to a healthy one, and thus conveyed the disease. Whereas I have taken swarms from an infected hive, and have found no trace of the disease appearing; but, on the other hand, I have seen it break out immediately. It is very easily explained, however. If a swarm is put into combs, their honey is used for feeding the young, and it is the same if a swarm be put into an empty hive and fine weather ensues; the honey (diseased) is not all used for comb-building, but some gets stored in the cells and ultimately used for feeding, and hence the disease is at once fixed in the hive, but if a swarm is taken from a diseased hive and put into an empty one, and the weather becomes dull, the honey may all be secreted for comb-building, and it may altogether escape disease.

From the foregoing it will be found (and I have proved it) that it is futile to attempt to cure a hive or an apiary of foul brood until every drop of honey has been absorbed, some way or other. As has

already been stated that extremes of temperature will raise the disease, and that the smallest modicum will even impregnate other matter, it becomes incumbent on every bee-keeper to guard against everything that will excite such a fearful malady. Although I have shown how a cure, in certain circumstances, has been accomplished, prevention at all times is better than cure. I will, therefore, add a few hints what to avoid and perform.

(To be concluded in our next.)

GENERAL USES OF SALICYL ACID.

To preserve meat fresh, but where most likely to be tainted over, use 5 grains of Salicyl to every 10 pounds of meat. If the meat is already tainted, soak for an hour in a solution of 20 grains to each quart of water; if very bad, 25 grains to each quart of water, afterwards wash and rinse well.

To keep eggs fresh, lay them for quarter of an hour in a solution of 60 grains to a quart of water; take them out and let them dry in the air. They will keep for months.

To keep milk 36 hours longer than usual, and not destroy its creaming or churning properties, dissolve 5 grains in every quart; this does not in any way destroy the flavour of the milk.

To keep ale from being mouldy or flat, add half a grain to each quart.

Spirits of wine or Absolute Alcohol ($C_4\ H_6\ O_2$) 92° to 97° may be used to dip small articles in or to be painted over larger ones.

Carbolic Acid or Phenylacid ($C_{12}\ H_2\ O_2$) diluted with water in the proportion of 1 to 100 may be used to dip or paint articles with, but owing to its very strong and pungent smell, must not be used where such is not agreeable; it has also the disadvantage of being poisonous especially in the crystallized preparation which is comparatively transparent; the commoner sort resembles gas tar of a thin consistency and smells as strong, a solution of 240 grains in a quart of water may be used as a wash for hives.

Hypermanganic Acid ($Mn_2\ O_7$) is not poisonous and without smell. In purchasing care should be taken to procure the best, which is in almost black needle crystals, and the slightest crystal will give a very beautiful purple colour to a large quantity of water. A disinfecting solution may be made by dissolving 240 grains of acid in 3 quarts of water, in which articles may be dipped, washed or painted with care being taken to keep the bottle containing the acid well corked and in a dark place; as, also, the solution should be used as quick as possible, as by exposure decomposition proceeds very rapidly, oxygen gas is disengaged, and hydrated peroxide of manganese deposited, this decreases as the temperature is lower: wooden articles painted or washed with the solution turn of a light brown colour. A solution of 60 grains in 4 ounces of water and a teaspoonful of this solution mixed in a tumbler of water produces one of the best mouth-washes for bad breath.

To prevent preserves, jellies, honey, &c. from being mouldy or fermenting, spread a pinch of Salicyl on the top of each jar or mixing with them.

To preserve salads of various sorts, also gravies, when making to keep a day or two, mix 1 grain to each pound or quart.

OUR BEES.

Now let us see a hive of working bees;
Look through their windows, they will charge no fees.
These little creatures well repay our care,
And sting us well to boot—therefore, beware!
But when well stung a hundred times or more,
You like the workers better than before.
The more you know of them the more you will
Admire their honest pluck and marvellous skill.
They don't attack unless you first molest,
And then their warfare is a just protest.
Friendly, the music of their busy wing—
It is the thief that they repel and sting;
Where is the crab who does not like their honey?
Costing no pains to *you*, and little money.
Our hive the first was kindly given me
By my friend R—— of D——n; and you see.
That so prolific is the busy bee.
The solitary *one* soon turned to *three*.
They gather from the tree, the shrub, the flower,
What otherwise is lost the following hour,
Rich harvests, given by nature without stint;
The bee-hive ought to be our coining mint.
But much depends upon our management,
And on the kind of hive in which they're pent.
I know a gentleman in Lancashire,
Whose first experience I give you here:
Having obtained a first-rate stock and hive,
These brought him in the following year swarms five;
And these, soon sold, brought back his cash in full—
A profit seldom gained by *push* or *pull*.
And thus, in one short year, his stock-in-trade
Cost nil; nor was this all the profit made;
For he had taken honey treasures, too,
Wherewith to grace his tray the summer through.
If such the value of these colonies,
How unwise he who would not keep them is.
Give them the chance, they will increase your wealth,
And honey is so wholesome for our health.
Some one has lately said the honey bee
Destroys the peach and other fruit—ah me!
The wasp, just like the bee, has legs and wings,
And like the one the other hums and stings.
The cockney's 'apple' was a chestnut-tree;
This man, too, surely must a cockney be.
Now of bee-*hives* I have a tale to tell:
No *cot*, a queen should in a palace dwell.
We have the Stewarton and Bar-frame Hive,
And several other kinds of hive beside:
See, here are various kinds of supers, used
When summer's nectars widely are diffused.
One object gained by using modern hives
Is that of saving bees their precious lives;
For millions are yearly sacrificed
Upon the barbarous sulphur-pit—not *iced*,
But *burnt!* for this is Sleepy Simon's way—
Just what his grandsire did, he does to-day.
We want to teach him better ways, and try
To teach him, he may follow by-and-bye.
You cannot *drive* him, he will only go
His pace; nor does he care for friend nor foe.
'Tis true that Yorkshire Jack and Lancashire John
Compelled the rustic go the rail upon;
But if in aught at all he progress makes,
You have to shake him well before he wakes.

Extracted from a 'Garden Poem.'

BRITISH BEE-KEEPERS' ASSOCIATION.

The second meeting of the Committee of 1875-6 was held on the 9th December, 1875, at Ashley's Hotel, Henrietta Street, Covent Garden. There were present Messrs. Hooker, Hunter, Hughes, Glennie, Edwards, Walker, the Treasurer, and the Hon. Secretary.

Mr. Hooker having been voted to the chair, the minutes of the last meeting were read and confirmed.

Cheques for 9*l.* 1*s.* were ordered to be drawn, on account of printing and other expenses.

The Hon. Secretary read a letter from Mr. Desborough, asking permission to peruse the prize MS. lecture, and

after some discussion, it was resolved, 'That the Hon. Secretary be empowered to allow Mr. Desborough, or any other member, to have for perusal the MS. lecture for which the prize was awarded.'

The Hon. Secretary produced the prize medals for the inspection of the Committee, and it was resolved, 'That the medals be returned to the maker, in consequence of their being faulty.'

A discussion arose as to the advisability of sending out circulars stating the objects of the Association, and it was resolved, 'That a circular be prepared for distribution, and that Messrs. Glennie, Walker, Abbott, and the Hon. Secretary, form a Committee to undertake the preparation thereof.'

Mr. Abbott brought forward the question of having a standard bar-frame for the United Kingdom, and it was resolved, 'That previous to discussing the subject, the Hon. Secretary insert a letter in the *British Bee Journal*, requesting gentlemen in the country to send him their views respecting the advisability of having a standard bar-frame, and also the most suitable size for the same.'

Mr. Hughes was appointed Auditor for the current year, and the meeting then terminated.

Several thousands of Circulars, Rules, &c., in pamphlet form, will shortly be issued, and the Committee will be glad to receive Advertisements to aid in payment of the costs of the same.

*** In compliance with the above resolution, the Hon. Secretary invites gentlemen interested in the subject of a standard bar-frame to send him their opinion, in order that he may lay their letters before the Committee at their next meeting.—E. L. CLEAVER, *Hon. Sec.*, 1 *Devonshire Terrace, Marlow Road, Kensington, W.*

St. John Wembley Almanac, 1876. By the Rev. W. Gray.—We highly commend this sheet almanac to our clerical friends. While offering much good advice on the highest concerns of his parishioners, the reverend gentleman recommends to them 'bee-keeping, as adding a little to one's income and the general wealth of the country. It gives healthful amusement also, and very many valuable lessons may be learned from the study of bees.' It also sets forth at some length the 'advantages of bee-keeping and of feeding bees.' We could suggest no better form of conveying information on bee-keeping than that furnished by this admirable almanac.

Foreign Intelligence.

ITALY.

The annual great Bee Show was held at Milan from 5th to 10th of last month, December On the 9th, there was a general meeting of the representatives of the Association to discuss important matters. Last year's yield, as far as can be estimated from the reports already in possession of the Association, has been fair as a whole.

The whole of the chromo-lithographic plates, on the Anatomy of the Bee, are now published. This work, which consists of thirty plates, beautifully illustrated, has been brought to light under the auspices of the Central Association. Their artistic merits have been acknowledged throughout the Continent, and are considered extremely useful wherewith to acquire a thorough knowledge of the construction of the queen, worker, and drone bee. To these plates prizes were awarded at the Vienna Exhibition, and at the Apicultural Congress held at Halle.

ALGERIA.

Last year's exportation of yellow wax amounted to 80,580 kilos.

ECHOES FROM THE HIVES.

Somerset.—'The recent boisterous weather has given many bee-keepers in this county a practical illustration of the necessity of preparing for storms before winter sets in. I have heard of several hives being upset by the gales, stands and all being turned topsy-turvy. Scores of stocks have completely perished already, and the penny-wise-and-pound-foolish owners are lamenting their "bad luck!" These costly lessons will probably teach them to feed in time and to prepare for windy weather. We sadly want more words of advice, written in a chatty style and printed in a cheap form, suitable for gratuitous circulation, like the Crystal Palace Leaflets, &c. These little messengers are very useful, and many a bee-lover, who has neither the time nor the talent for lecturing, might do much to promote apiculture by occasionally handing one to persons who keep bees. Let me also suggest that those who take the *Journal* should lend it to their neighbours occasionally. If this were done judiciously, many new subscribers would be obtained. Pray let me say "ditto" to the correspondent whose communication from Arley was published in your last issue. We want a cheap and simple Slinger, and it would be a vast advantage if one can be made to clear combs taken from skeps, as well as those from bar-frame hives. I believe such a machine would be one of the best means of promoting bee-keeping; and as soon as I can get one, I will let my cottage neighbours know that it is at their service. At the same time I shall not fail to impress upon them the advantage of the modern hives, and the great saving effected by re-using the comb.'

Droitwich.—'My bees have now gone into winter quarters, which I hope will prove safe for them. All that have taken their bees (smotheration plan) have, as far as I can hear, been mightily disappointed, so that I fear, should we have at all a hard winter, 'twill go hard with the poor bees that have not been well fed. Don't you think a vulcanite strip along the top (front and back) of hives would be better than zinc, as in Cheshire's, for the frame-ends to rest on? If so, could I have the sheet cut long enough for a large hive?'

[Vulcanite may be had in strips or sheets about 3 feet in length and 18 inches wide. It is undoubtedly better than metal inside a hive.—ED.]

NOTICES TO CORRESPONDENTS & INQUIRERS.

C. H. E. will be very much obliged to any reader who will be good enough to inform him, through this *Journal*, of the best substance to select to form the floor of the ground under and in front of the bee-houses; something of a dry and warm nature, so that when bees drop through cold or exhaustion, the floor will tend to revive, rather than assist, by wet and cold, in helping to destroy the bees.

UPWELL ISLE.—Barley-sugar may be given anyhow, so that the bees can get at it, but do not give them a large quantity at once, or it may deliquesce more rapidly than the bees can take it, and smear the combs and floor-board with liquid, which in cold weather is highly detrimental.

JOHN MAXWELL.—*Uniting.*—The precautions usually observed on uniting bees are,—taking care that they shall have acquired the same odour; that they shall all have gorged to repletion; or, that they shall have been reduced to a common state of poverty, so as to have nothing to defend. In either of these conditions the union may be effected without loss of life, but in all cases it is better to drive the bees from the combs before mixing them together.

In consequence of extreme pressure, several letters of interest must unavoidably stand over until next month.

*** Our Catalogue will be published during the ensuing week, and may be had post-free for one stamp.

THE

British Bee Journal,

AND BEE-KEEPER'S ADVISER.

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Editorial, Notices, &c.

FEBRUARY.

The time has arrived when bee-keepers should be on the alert preparing for an early honey harvest, and for the general business of the season which is silently coming upon us. After the cares of the autumn, and the balancing of accounts, of which far too many required coaxing to prove on the right side, it was reasonable to 'rest, and be thankful' that things were no worse, but now, as the days lengthen, and the sun gains power, the pleasant hum of our little favourites reminds us that the winter is passing away, and that life and activity will shortly prevail in our apiaries, bringing with them obligations which will be lighter and more easy to discharge accordingly as they have been anticipated and provided for.

Examination of Stocks.—The frost having departed (*pro tem.*), every stock in the apiary should be examined; at the first opportunity, its floor-board cleaned or exchanged, the larvæ and chrysalides of the wax-moth removed from the lower edges of the hives; dead bees, if any, picked or brushed from the combs, spiders destroyed, and their webs and nests cleared away, and everything done which can add to the comfort of, and prevent useless labour or inconvenience to the bees. When stocks are weak, a little barley-sugar, or an ounce or two of syrup, should be given to them every other evening, but every possible cause of excitement, which would tempt them from their hives, should be avoided; for if they be induced to fly abroad in search of food, kindly but injudiciously offered to them outside their hives, many will alight that will never return, and the stocks will dwindle when they should be increasing in numbers.

Stimulative Feeding.—When the crocuses are in blossom, and bees begin to seek their natural food, early stimulation should be commenced, and should be continued until the fruit-blossoms appear, and the bees are enabled to gather food for themselves. Gentle, continuous feeding has ever been our principle, as opposed to the rapid and spasmodic methods; and for the purposes now under consideration, nothing can excel the inverted syrup bottle, and the perforated zinc, or vulcanite plate or stage. The food should not be too thick, or it may form hard-bake over the perforations, and allow the bees to starve, while if it be too thin it will but be filling the hive with useless water. Five pounds of loaf-sugar, two pints of water, a wineglass-full of vinegar, and a pinch of salt, when boiled together until the sugar is thoroughly dissolved, form the best liquid food with which we are acquainted. Honey may be added and *boiled* with it if so desired, but should on no account be given otherwise, for unless subjected to a high temperature, any germs of disease which it may contain will remain latent, and the genial warmth of the hive will develope them, and possibly ruin the colony. Stocks which contain great quantities of honey need no liquid food, but some portions of their sealed honey should be daily exposed by shaving off, or breaking the seals of the cells. The bees will immediately empty all such cells, and will be as happy over it as if they had suddenly discovered a new treasure, and their breeding will rapidly increase. Stocks that are but moderately supplied, should be fed through one, or two pin-holes only, which will afford them a continuous income, and will be sufficient for the purpose intended. While the bottles are in use on the tops of the hives, artificial pollen should be set in convenient places near the hives, that the bees may take it in proportion to the strength of the respective colonies. Those who have not witnessed the eager haste with which the bees load themselves and take away the coveted farina, can form no idea of the quantity that can be used up in a large apiary. Last year our bees consumed, during the bright days of March and April, from one to two shillings' worth per day; but it was not given grudgingly, as we knew that it would result in bees twentyfold its cost, and so it proved, for our stocks were quickly overflowing with bees; and but for the terrible weather which came on in June, and continued throughout the summer, there could have been no cause for regret.

Bee Plants and Seeds.—During this and the ensuing month seeds should be sown and

plants set out where they are to remain for blooming. Borage, mignonette, white alyssum, balm of Gilead, corn-flower, thyme, phacelia, mellilot clover (for next year's plants), asters, and other seeds should be sown; and hollyhocks, stocks, wall-flowers, mellilot clover, and herbs of all kinds planted. If with the mellilot plant a few seeds be put in near the root, plants will arise to stand for a second year, while seed will be shed during each successive season, and make the clover crop permanent. This plant, growing to a height of six to eight (or more) feet, forms an excellent screen to an unsightly object during the summer; and in the autumn, when covered with white blossom, is invaluable as a bee-plant, as it will continue to yield honey until the frost destroys it.

Preparing for Swarms, &c.—In view of the coming season, when swarms may naturally be expected, we strongly advise all bee-keepers to provide for them by preparing hives at once. Many we know will make their own, but the majority must depend upon hive-makers and dealers for their supplies; and, bearing in mind the difficulties which arose through one of the principal English hive-manufacturers failing to carry out his orders, through his being unable to obtain skilled labour at late date and short notice, we think they will be wise who give their orders immediately. There are many hive-makers and dealers, so that there ought to be no difficulty in obtaining any number of hives and all kinds of bee-furniture, and there would not be if the public would enable them to estimate the probable demand by giving them early notification of their wishes.

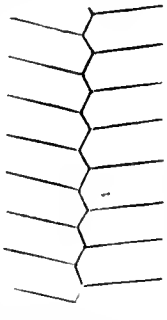
The addresses of several reliable makers and dealers in hives, &c., will be found in our advertisement columns, to wit—Thomson, with the Lanarkshire; King's Sherrington; Hale's Kedington; Abbott's Frame-bar, &c., &c.; Mrs. Pagden, with her cheap straw-work; Edmondson, Dublin; Pettitt, with the Sibertswold, &c.; Lee, with the Carr-Stewarton, &c., &c.; and last, but not least, Messrs. Neighbour and Sons, with the Improved Cottage Hive, and others. In addition to these, Messrs. Sadler, Symington, Rusbridge, Carr, Cheshire, Hooker, Jackson, Yates, Pettigrew, Marriott, Proctor, Allan, Craig, and others, are makers or vendors, so that the hive-world is wide to choose from, and the wares as varied as the localities in which they may be found.

A NEW METHOD OF SUPERING.

While at Stamford, in September last, during the outdoor exhibition of manipulation with live bees at the Northamptonshire Agricultural, and the Stamford Floral and Horticultural Societies combined Show, in Burleigh Park, we had the honour and pleasure of making the intimate acquaintance of the promoter of the exhibition (of bees), Mr. J. G. Desborough, of Stamford, who has actively employed all the '*leisure*' of a long life in the study and cultivation of our wonderful little insect friends; and during our sojourn we were deeply interested in the exhibition and explanation of many of the numerous contrivances with which that veteran bee-master had conducted his various experiments to test, for his own satisfaction, the theories and suggestions which many are often too willing to take for granted.

Among the many *curiosities* which were brought under notice was a straw skep in an inverted position, its crown resting upon the floor-board, and its adapter and super upon what was originally the bottom of the hive; in other words, the super had been placed on the hive after the latter had been turned bottom upwards, and the theory, which we were assured was excellent in practice, was as follows.

It is tolerably well known that the cells in a hive have all, more or less, an upward inclination, as shown in the engraving, a provision evidently intended to enable the bees to *store* their liquid food with facility, and to retain it under any of the ordinary conditions of temperature to which the hive might be subjected; but if after the combs have been built, the hive be suddenly inverted, the cells will assume a reversed position, and it will be manifest that, although the angle of deflection may not be sufficient to cause solids to leave them, it will be impossible for the bees to fill them with liquid honey, or for the honey to remain in any of the unsealed cells. Here then is the gist of the theory. When a stock or swarm has arrived at the proper condition for supering, and the weather is favourable, the hive should be inverted and the super put on as herein described. The honey in the open cells will thereupon begin to run out of them, which the bees, like careful housewives, will immediately begin to clear up; and it is not difficult to imagine the consternation that must ensue when on endeavouring to re-store it, they find that every vessel in their hitherto well-ordered domicile is leaky and will not hold their precious liquid treasure, and that, *nolentes volentes*, they must build anew or retain it in their honey sacs until it is consumed. If at such a juncture a super containing empty comb be available, it is almost a matter of certainty that they will avail themselves of it, and if at the same time the queen be prevented ascending,



there is little doubt but that nearly the whole of the ingathered honey not required for their daily wants will be stored therein.

It may be thought that bees will not use inverted combs for breeding purposes, but that they *will* do so, we have for many years been convinced from the following fact. A lady near by, wished her gardener in the spring to make an artificial swarm from a strong stock in a skep, and he, not knowing much of the subject, inverted the hive inside a large tea-chest, and tried after some ill-understood method to drive the swarm, and not only failed, but was so severely rebuked by the bees, that he slipped the floor-board as nearly as his failing eyesight would permit, into its position *upon* the hive, and putting on the roof, with a sack under it, ran for dear life, and made a mental promise, '*never to come there no more.*'

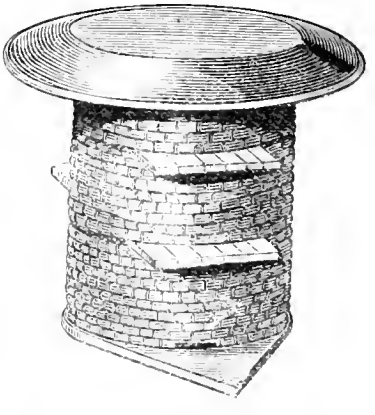
The bees were thus left to take their chance, the poor fellow believing that he had, to use his own expression, *settled* them, but as they did not *die*, we were asked in the autumn to see if anything could be done with them, and they were overhauled accordingly. We found the colony of great weight with an extraordinary number of bees, brood *up* to the very floor-board, and the tea-chest so filled with honey-combs, that the hive looked like a big bird's nest in a cube of rockwork. This occurred in our early bee-keeping days, when, not being sufficiently confident, no advice was tendered, or indeed asked, and we simply removed the honey from the tea-chest as requested, and placed the hive right way up on its stand; and, as a sequel, the stock perished during the ensuing winter. These facts were little thought of until our visit to Stamford and Mr. Desborough's explanations recalled them to mind, but it is now easy to perceive that the loss of the colony alluded to was due to the fact that nearly all the surplus honey had been stored *outside* the hive; and, having been suddenly removed, and no artificial food given, the death of the bees ensued as a matter of course.

In the hands of a painstaking bee-keeper, the principle would probably be effectual; but we hesitate before recommending it for *general* adoption, because of the possibility, that in an indifferent season the bees might starve for want of attention. The fact must not be lost sight of, that since the stock-hive cannot be used for storing honey except in such new comb as might be built against the adapter, and, perhaps, in a few horizontal cells, almost the whole of the combs will be available for breeding purposes, and so long as the ingathering continues, breeding will go on to a large extent, so that it is possible the bees may consume their supply as fast as it is gathered, and a few days of wet or cold weather may ruin them.

We hope the plan will be fairly tried during the coming season, it deserves attention, for if it *is* as it *appears* to be, honey-getting will be easy. When a glut comes, it will only be necessary to put a strong swarm into a supered hive filled with inverted combs, and fitted with an adapter to keep the queen out of the super, and the bees must (?) immediately take possession of the latter and fill it. We hope this is not 'too good to be true,' it promises fairly, but before we say too much about it, let us try it.

OUR STRAW STORIFYER.

This hive is intended to meet a want long felt by straw hivists, as by its means the honey, the bulk of which is always stored at the top of the hive, may be removed without the necessity which exists where skeps are used for disturbing the bees and combs in the lower parts of the hive, when the removal of the honey has been determined on. It is, as will readily be seen, in horizontal sections, on the



'far-famed' Stewarton principle, and its lower compartments are fitted with bars, the most central of which run through the hive so as to be available as top bars for frames when combs have been built upon them.

It may be made to consist of any number of sections required, each of which has a small entrance-hole in its rim for convenience of flight, which, however, may be closed when desired. The whole is surmounted with a galvanized iron milk-pan, which, being made entirely of one piece without seam, is well-nigh indestructible. A *feature* in the hive is its adaptability to the new method of honey-getting propounded in preceding article, for, as will be seen, the sections of which it is formed being alike at the top and the bottom, they are capable of inversion when filled with combs, and readily adaptable to the method there described.

THE ANATOMY OF THE BEE.

We have had submitted to us for inspection the *Anatomia dell' Ape*, by Clerici, recently published at Milan under the auspices and special supervision of the Central Italian Bee-keepers' Association. This highly interesting publication consists of a series of 30 beautiful chromo-lithographic plates, 8 inches wide by 12 inches high, artistically produced, with admirable frontispiece for binding. We understand that the execution of this anatomical work has occupied considerable time, and are informed that prizes have been awarded to it at the Vienna Exhibition and elsewhere. We bear testimony without hesitation to the general beauty of the details, and to the tastefulness of their execution, both which are strikingly prominent. As for its intrinsic usefulness, the work commends itself. We are glad to recommend publications of this nature, as such are the foundation, *par excellence*, of scientific apicultural knowledge; and for the lecture-room, though rather small, they will be found invaluable: thus we are glad that arrangements for its introduction in this country have been made, as will be noticed by an advertisement to be found elsewhere.

For naturalists generally, and bee-keepers in particular, we know of no work of this kind more worthy their attention. Those wishing to acquire for themselves, or impart to others, a perfect knowledge of the mysteries embodied in the *Apis mellifica* and its wonderful physical construction, these plates, of which the following is a classification, will prove to be of great value:—

1. Honey-comb, brood, queen-cells.
2. Eggs, larva.
3. Worker-nymph.
4. The queen-bee.
5. The worker-bee.
6. The drone-bee.
7. Queen's head, compound eyes, and mandibles.
8. Drone's " " "
9. Worker's " " "
10. Simple eyes of drone.
11. Compound eyes of worker.
12. Worker's legs.
13. Proboscis and its various organs.
14. Digestive organs of bee.
15. Worker's wings.
16. The wax organs.
17. The worker's sting-apparatus.
18. The wind-bag of the worker.
19. The nervous system of the bee.
20. The worker's salivary glands.
21. Generative organs of fertile worker.
22. The queen's sting-apparatus, &c.
23. The pulse vessels.
24. The generative organs of the queen.
25. The generative organs of the drone.
26. Male organ, spermatozoa.
27. Foul brood, micrococci.
28. The wax-moth and larva.
29. Braula cæca. Mandibles of wasp.
30. Death's head moth.

COUNTY ASSOCIATION FOR DUNDEE.

A Bee-keepers' Association has just been formed in Dundee; but its title, and whether it will be in any way affiliated to the Caledonian Association at Glasgow, are not yet definitely determined. Henry Lorimer, Esq. Coldside, Dundee, a veteran amongst bee-keepers, is to be the President; John Stewart, Esq., of Arbroath, Forfarshire, the Vice-president; and William Raitt, Esq., of Liff, by Dundee, the Honorary Secretary.

A Treasurer has not yet been elected, but it is hoped that a banker will undertake the office. The rules, &c., as far as they are made, are similar to those published in the *Journal* of December last, and will be more fully particularised when the Society has taken more permanent form.

It is gratifying to know that already a proposal to grant 40*l.* in prizes to be given at the International Show in September next, has met with the approval of the members, and that a schedule is being prepared which will shortly be issued.

In the meantime it is hoped that every bee-keeper within the Association's radius of influence, who may read these lines will send to the Hon. Sec. full lists of the addresses of all the bee-keepers in his neighbourhood, that they may be personally made acquainted with the establishment of the Association.

BEE KEEPING.

PRIZE ESSAY. BY MRS. E. S. TUPPER.*

Bees, from the earliest ages of the world, have been invested with peculiar interest, and have claimed the attention not only of the unlearned and ignorant, but of the student and naturalist. The mystery which so long enveloped them and their habits, added not a little to the zest with which their history was investigated.

The discoveries of the last twenty years, however, have so elucidated the laws of bee-instinct, that no important point is longer a subject of controversy or mystery; and in the light now thrown upon the subject, no branch of political economy can be more definitely regulated or conducted with such absolute certainty of success.

The management of bees can only be successful when conducted with a perfect understanding of their natural history, and in accordance with the instincts which govern them. In the words of one of the most eminent apiarians in our country: 'The business may be viewed first,

* From the 'Bee Keepers' Magazine.' H. A. King and Co., New York.

as a science, having for its object the obtainment of a correct knowledge of all that pertains to the life, habits, and instincts of the honey-bees, and secondly, as a practical art, which regards all the attainments thus made, and to be made, as the only reliable foundation of successful management.' The laws which govern these wonderful little insects are peculiar to themselves, differing from those which govern everything else. They are simple, and one can manage them in any way provided he does not go counter to their instincts; but they are fixed and immutable, and when we deviate from them in the smallest particular, loss must follow; to be successful, then, in the practical art, the science on which it is founded must be thoroughly understood.

All these laws have been so fully and clearly explained in various able works on the subject, that to enter on them here would be superfluous; this paper, therefore, will treat only of the practical, and aim to give direction and advice as to the management of bees, in such a way that they shall every year, whatever be the season, yield a profit to their owner.

I shall recommend nothing that I have not fully tested, and give no rules that I have not myself followed with profit.

The business requires but little capital, and so little strength, that it may be made an agreeable recreation for the man of toil, and a most remunerative employment for invalids. There is no part of the work required that is not suitable for women; and now, when many are looking for new avenues of female labour, I would I could induce some to find health and pecuniary profit in this business. In almost every part of the United States, honey-producing plants abound; no other country in the world is so rich in them, yet this great source of wealth is comparatively undeveloped.*

By the official report of the Department of the Interior, it appears that there were produced in 1860, in the whole United States, only 23,306,357 pounds of honey, which is about half the amount of maple-sugar produced the same year. For the same year the little kingdom of Denmark produced 4,758,260 pounds of honey. The island of Corsica paid, for many years, an annual tribute of 200,000 pounds of wax, which presupposes the production of from two to three million pounds of honey. The island contains only 20,200 square miles. In the province of Attica, in Greece, containing only 45 square miles, and 20,000 inhabitants, 20,000 hives were kept, and an average obtained from each of 30 pounds of honey and two pounds of wax. East Friesland, a province of Holland, containing 1200 square miles, maintained for twenty years an average of 2000 colonies to the square mile.

I mention these facts here to show what was done with bees in different parts of Europe. Now, if these results can be obtained there, what may not be done among our rich plants by a system of intelligent bee-culture? No part of the world is more rich in honey (excepting, perhaps, California) than Iowa, and yet here in 1865 were found 87,118 hives of bees, or little more than one and a half hives to every square mile. These hives yielded only 1,117,833 pounds of honey and wax, or about thirteen and a quarter pounds average to each hive. In view of facts like these, how important to encourage in every possible way the increase of bees, and circulate facts regarding their intelligent culture.

Hives.—For fifty years Yankee ingenuity was busy in the construction of hives which should secure marvellous yields of honey and increase of bees. The idea was to invent something that would do the work for them. All such inventions (and their name is Legion) proved failures, as might have been expected, since it is a fixed fact that bees will gather and store just as much honey in an old hollow log or old barrel, *while all is right with them*, as in any hive of any patent. The object, then, in having anything else for them is not to aid the bees in storing honey or raising brood, but to assist the owner in getting the surplus honey in the best form, without injuring the bees, and also to give him the control of the interior of the hive, so that he can tell what is wrong and apply the remedy.* From the time of Huber, such an invention has been thought desirable, but it was not until our day that such a one was made.

Between 1834 and 1845 several persons in Europe and in this country invented hives in which the combs were to be built, each on a separate bar or frame, which could readily be lifted out at pleasure, and thus a new era in bee-keeping was commenced.

[Since this Essay was written, as all are aware, great improvements have been perfected in hives of which it is quite unnecessary to speak here.]

There is nothing in these hives which is intended to perform the labour of the bees or their keeper. They are simply aids to the work. The great advantage which they possess is the command they give of every comb, placing it in our power to know certainly the condition of our bees.

* Perhaps Mrs. Tupper has never visited our fertile British Isles.—Ed. *B. B. J.*

* This ought to be written in letters of gold.—Ed. *B. B. J.*

In the common hive it is easy to tell when your bees are prosperous, and all is right. It is equally easy to tell when something is wrong, but not so easy to find out what that something is. You may easily perceive that the bees decrease, and suspect that they have lost their queens, or notice that they work with less energy, or think possibly (as is often the case) that they have too much honey stored in the combs where the young should be. But there is no way to ascertain positively; and often before we can decide the matter, it is decided for us by the colony becoming worthless. In the moveable comb hive it is our own fault if we do not know positively all the time that there is no trouble. If the hive is queenless, it is soon ascertained by examining the combs, where the presence or absence of eggs determines the matter. In this case another queen, or the eggs from which to raise one, can be at once provided. If too much honey has by some accident been stored in the centre combs, one or more can be exchanged for empty ones, which the queen will gladly fill with eggs to replenish the hive.

And here let me say that this trouble I find to be one of quite common occurrence. During a plentiful yield of honey, the bees, in their eagerness to store it, often stint the queen of room, in which to deposit her eggs. I have oftens een this in moveable comb hives, where the remedy can be applied in a moment. This is only one proof among many that it is not always safe to trust to the instincts of bees any more than that of any other animals.

[Within a few years a machine has been invented, and is now made in several forms, for extracting honey from the combs, which are then returned to the bees to be refilled. This Extractor has made a great change in bee-keeping, and also made necessary a remodelling of hives, so that room for more frames may be given. It is easy now to obtain three or four times as much honey by means of the Extractor as was obtained in the comb in the old way.]

Another advantage of these hives is the facility with which drone-comb can be removed or its building prevented. One who has not examined the matter would be slow to believe how much honey is needlessly consumed every year in drone-raising. Here, again, the bee instinct falls far short of reason. When bees live wild, in isolated situations, the rearing of many drones no doubt conduces to the safety of the young queens; yet a preponderanee of drone-comb is, I am convinced, partly accidental. Late in the season, if honey is very abundant, and little brood being then raised, many colonies construct drone-comb, to enable them to store faster than they can do in worker-combs. The next spring they do not, of course, tear it down and build other, and being there the queen deposits her eggs in it, and drones are thus reared. It is also well known that colonies, when queenless from any cause, build drone-combs if they build any, and in the hives of such colonies there is a surplus for the next year. Now, if a hundred hives are kept together, and drones are raised in one or two of them, it is enough for all. Therefore, it is easy to see the economy of a hive in which drone-raising can be restricted at will, that the honey used in raising and afterwards in feeding them may be saved. I say '*restricted*,' for I have never found it best to leave any hive entirely without drone-comb. It is better to leave a few inches in some central comb, in every hive; otherwise, at the swarming season, they will lengthen out the worker-cells and raise some drones.* If they have room for a few, it seems to satisfy them.

Again, the prosperity of the colony depends much on the age of the queen. All must have perceived the difference in prosperity of swarms, side by side, in the same kind of hives, and in the same location; one will vigorously increase, and store up honey, while the other barely lives.

In many eases this is caused by the difference in the age of the queen, as any one will ascertain, who takes the trouble to mark the hives containing young queens. After the second year the queen is far less prolific, and then much is gained by removing her, which is easily done in these hives. It is objected by some that this is 'unnatural;' but I would ask, is it any more so than to kill a hen after she is too old to lay many eggs, or to shear a sheep, or break a colt? Why may we not use bees contrary to their nature as well as domestic animals?

The strengthening of weak swarms is also facilitated by these hives. Such colonies will always be found where many bees are kept, and by the aid of these frames they may be built up into strong and vigorous ones; honey, bee-bread, and young bees, being taken from a stand well able to spare them, and given to others perishing for want of them. In this way many worthless swarms have been converted into excellent colonies. In the fall, all such weak swarms may be united with strong ones, which are improved by the addition. In the spring, the same thing can be done, and your hives kept always equalized and strong.

Old or soiled comb can also be taken away when you please.

But the pruning of old comb, which is practised by many every year, is in most cases

* Query.—Ed. *B. B. J.*

unnecessary. So long as it is free from mould, it is good to store honey or rear brood in. I invariably find, all other things being equal, that bees winter better in old comb than in new. Bees have been kept in the same comb twelve years in succession, doing as well the last year as the first. When the cost of honey in building new combs is considered, the advantage of hives in which you can save all good pieces is very apparent. It is not necessary to have these frames in a complicated hive; nor in commending them do I mean to endorse the hundred and one traps for the ignorant, which in many hives are added to them. A plain tight box, well made of seasoned boards, in which the frames can be hung, is all that is really necessary. Any amount of extra outside finish may be added, and it always pays to have hives well painted.

(*To be continued.*)

NATURAL HISTORY OF THE BEE.

At the weekly meeting of the Brighton and Sussex Natural History Society, held January 13th, the following interesting paper on Bees was read by—

Mr. C. B. Smith, who commenced by describing the bee as an insect consisting of a head, thorax, and abdomen, united by cylinders, which are at times so reduced as to make it wonderful how the minute nervous cord passing through it is able to control all the functions of the organs of sensation and motion. The head is the most important section, and carries the antennæ, the compound eyes, the simple eyes, and the organs of the mouth. The antennæ, or feelers, are variously constructed, being sometimes straight, and at other times curved, or like a string of beads. In a wild bee the integument of the antennæ is of an hexagonal structure. The antennæ have been supposed to be organs of smell and also of hearing, but this is by no means certain; they are, however, in constant motion, and are frequently protruded into a flower before the insect goes in, for the purpose, apparently, of ascertaining its fitness. The fact of a special apparatus for the purpose of cleaning them would also show that nature has attached great importance to them. On each side of the head are the large compound eyes, which differ in the various genera, and consist of a number of small hexagonal facets, each one having its own branch of the optic nerve. The use of these compound eyes is supposed to be the examination of near objects. On the crown of the head are the three stemmata, or simple eyes, which are supposed to be used for long vision, as, when covered up by a black varnish, Réaumur found that the bee invariable flew straight up, and was lost. The organs of the mouth, called trophi, are very variable in development in the different genera, and, when complete, consist of a labrum, or upper lip, an epipharynx, or gullet, which forms the mouth, the labium, or lower lip, and an organ called the tongue. Besides these single organs, the organs in pairs are the mandibles, the maxillæ, maxillary palpi, the labial palpi, and the paraglossæ. The labium is of a horny or leathery consistence, and closes over the organs below it, being covered when at rest by the mandibles. The gullet is placed close under the labrum, and is closed by the valve above, beneath which is a small triangular appendage, which receives the honey or food. The labium has two joints, one of which carries the maxillæ, or lower jaws, which in a state of rest fold together and form a sheath for the lingual apparatus. The tongue is not, as was formerly thought, tubular, but flat, and when at repose is broader than thick. It can be lengthened and shortened with great rapidity, thus pushing the syrup up to the gullet. Réaumur proved that the food always passes over the surface of the tongue, and not through the aperture which was thought to exist in it. The thorax is divided into three parts, to the front of which the front legs are attached. On the tibia of the forelegs in all bees is a velum, so named from its resemblance to a little sail, opposite which, at the base of the palmæ, is a deep incision, called the strigilis, or currycomb, from the pecten or comb of short stiff hair which fringes it. This apparatus is for the purpose of cleaning the antennæ, which are drawn through the hollow incision while being pressed by the velum against the currycomb. In the boring-bees the mandibles do the cutting and excavating work, while the forelegs or hands are used to clear away the rubbish thus formed, but by the artizan-bee the forelegs are used like trowels to work up the soft clay into cells. The bee has the power of locking the wings together in flight by means of a row of hooks on the inferior wing, which catch in a ridge or ledge in the upper wing, and thus gives the insect a much greater power of beating the air. On the hinder portion of the thorax are placed the hind legs, the shank of which in the social bee is dilated for the purpose of carrying pollen. The abdomen is often elegantly coloured, and consists of six imbricated segments in the female and seven in the male. In the artizan-bee pollen is conveyed on the abdomen instead of on the hind-legs, perhaps because of the narrow entrances to their nests. Passing on to the consideration of the honey-bee, in particular, he said the male or drone is distinguished by its more cylindrical shape, its larger size, and by being more densely hairy all over. The large compound eyes meet at the top of the head and cover all the side of the face. The abdomen consists of seven segments, being thus distinguished from the queen, which has six segments. The structure of the drone, as of all male bees, incapacitates him from any share in the work of the hive. So far as has been ascertained, its sole use is to impregnate the young queens, and to accomplish this end, nature has been lavish in the production of drones, about 1000 being produced in each hive during a summer, although, as seldom more than two swarms depart, only three drones are required for the purpose. The large eyes of the drone, no doubt, assist him in finding the queen during her nuptial flight, while the greater sweep of the hinder wings enables him to rise above her. The large number of drones is, no doubt, required by the circumstance of fertilization taking place high up in the air, and by the great importance of a speedy return of the queen to the hive, as, in the air, she is in great fear of being snapped up by birds, and thus in some cases the entire hive must perish. The fact of the drones not adding to but diminishing the honey has induced bee-keepers, as long ago as Aristotle, to use traps for their exclusion and destruction. The working-bees, however, in the latter end of July, suddenly make up their minds to stop the consumption of honey by driving out the drones and preventing their return, so that they perish from want. At the same time, the workers drag out and sting to death all drone grubs, being apparently filled with the utmost fury. During a wet summer, when honey cannot be obtained, the drones are driven out early. The queen-bee is the mother of the hive, and is easily distinguished from the other bees by her size, being much longer, and the abdomen being much more spindle-shaped. Her chief function is to lay eggs, and this she does both day and night. The manner in which the eggs fertilized was a great mystery until Dzierzon showed that there is communicating with the oviduct, through which the eggs pass, a spermatic reservoir. The fertilization of the queen takes place on the wing, and it appears probable that it only takes place once in life. Two or three days after impregnation she begins to lay, and if not permitted to leave the hive she lays all the same, though she only

produces drones. This has been proved by Siebold, who kept some virgin queens caged and found they produced drones only. From observations and experiments it seemed probable that the queen only laid two kinds of eggs, viz.: worker and drone, the former being capable, by appropriate feeding and management, of being developed into queens. The queen only lays eggs, leaving the workers to look after them and attend to the young. The other peculiarities of the queen are the want of a honey-bag, the inability to secrete wax, the convex thigh, which prevents the gathering of pollen, and the blunt sting, that cannot pierce the human hand. It is, therefore, dependent on the workers for food, which is continually presented to her by attendants who, like true courtiers, never turn their back upon her. The neuter, or worker, is principally distinguished by its pollen-collecting apparatus. Though called a neuter, it is in reality an undeveloped female, and occasionally lays eggs, as previously noticed. Perhaps the most important organ of the worker is the marvellously complicated muscular tongue with which the honey of flowers is not sucked, but lapped up and passed along the grooved surface of the mouth, and then to the honey-bag. The tongue of the hive-bee is twice folded in repose. The honey is collected from a great number of flowers, of which the lime, heather, and white clover are perhaps the principal. The proboscis of the hive-bee is not long enough to reach the nectary of the red clover, which is visited by the humble-bee. As a great deal of honey is needed to make wax for forming the comb, means have been adopted to empty the combs and return them to the hive. Combs are built most rapidly at night, the bees working during the day at honey-collecting. The peculiar structure of the working-bee cannot but be admired in conjunction with its work of cell-building. Their mandibles are edentate and like spoons, and are so used for strengthening and plastering their work, while the brushes on the posterior feet, and the little auricle, enable the hind-legs to gather up the wax as it is formed, and pass it on to the mouth to be masticated and moulded by the mandibles. The want of spurs on the hind-legs (in which the hive-bee differs from the humble-bee) gives a greater freedom and play to the comb of short stiff bristles at the extreme edge of the shank. Propolis, an adhesive substance, gathered from the buds of poplar, hollyhock, willow, and other trees, is gathered and used to strengthen the defences of the hive. Propolis is with difficulty kneaded into a ball and brought home in the corbiculæ, but it dries so quickly that it is sometimes with difficulty torn by the bees from the legs of the collector. This substance is indispensable for filling up cracks and cementing the hive to its floor-boards, which is always done for the sake of keeping out intruders. The eggs of the bee are of a long oval shape, and being covered with a glutinous matter stick to the bottom of the cell. In three or four days they hatch a little white worm, which has fifteen segments, each, except the head and four terminal ones, supplied with a pair of spiracles. It has no feet, but small knobs exist on each side of the segments, giving it a slight power of motion. This grub is very voracious, and is sedulously supplied with food by its nurses. On this food it thrives, until, in fourteen days, it is fully grown and fills the cell. The worker then seals over the cell, and the grub spins a cocoon of silk, in which it grows to maturity, in twenty-one days. It then bursts the covering of the cell and flies out. The cells for the queens are four or five in number, and they hang with their mouths downward. They are four times as large as the others and much stronger. The queen grubs are so largely supplied with food that they are in a thick bed of jelly, some of which usually remains after hatching. They arrive at maturity one-third earlier than the others, in consequence of the difference of their food, which also prolongs the life of the queen to two or three years instead of a few months. The young queen is jealously guarded by the workers from the queen-mother, and at its maturity the old queen generally leaves with other bees, who gorge themselves with honey before departing to form a new colony.

Mr. H. Goss asked if a difference in the temperature of the cell of the queen-bee had anything to do with the development of a worker into a queen.

Mr. C. P. Smith did not think it to be the case; and in answer to further questions from Mr. Goss, he said he did not know that the vertical position of the cell had anything to do with it, or if the food given to the queen was different to that given to the workers.

Mr. Goss said he had seen it stated that a queen laid from 70,000 to 80,000 eggs.

Mr. Smith added that a bee only lived seven or eight weeks.

Dr. Ingle called attention to the shape of the cells, and said it had been a mathematical problem as to whether the equilateral triangle, the hexagonal, or the square shape would waste the least space, and it had been found that the bee adopted the one—the hexagonal.

Mr. Womfor added that it had taken a senior wrangler six years of hard labour to arrive at the result.

CALEDONIAN APIARIAN ASSOCIATION, GLASGOW.

A Committee meeting was held in M'Innes's Temperance Hotel, Hutchison Street, Glasgow, on Wednesday the 19th inst. There were present, Messrs. Bennett, Wilkie, Sword, Thomson, Henderson, Butler, Dougall, and Maxwell.

Mr. Sword was voted to the chair, the minutes of last meeting were read and approved. Mr. Bennett reported on behalf of the Kibble Crystal Palace Company, Glasgow, that Messrs. Wilkie, Butler, Thomson, and himself, had visited the builders, and had obtained the design and estimate of a screen, which it was proposed to erect in the Kibble as a permanent place for the exhibition of bees and bee-furniture, and which he now submitted to the meeting for approval. It was agreed to refer the matter back to the Committee to give them time and opportunity to consult with the Directors of the Botanic Gardens and see what sum was likely to be obtained for advertising on the glass paneling.

The Secretary read a letter from Mr. Raitt, of Dundee; and after some animated discussion on the propriety of holding a Show in Dundee in September next, it was conditionally agreed to do so, on the Secretary receiving a satisfactory communication from the Dundee Vice-President, and thereafter a schedule was to be drawn up offering prizes to the extent of 100*l.*

It was also agreed, on the motion of Mr. Bennett, that 100 *British Bee Journals* be taken for February and circulated amongst the members.

Mr. Thomson showed honey-tests whereby sugared honey could be easily detected from the genuine, to the satisfaction of all present, and he was warmly encouraged to go on with his chemical experiments.

The Secretary was instructed to write to Messrs. Abbott of Hanwell and Lee of Bagshot, to see the lowest terms they would put the Society on in regard to Ligurian queen-bees, hives, bee-furniture, &c., so as to enable the members to get them at little over prime cost.

The following gentlemen have signified their intentions of becoming patrons:—Colonel Holms, M.P.; Baillie Scott, Greenock; the Hon. the Lord Provost of Glasgow; his Grace the Duke of Argyll; Colonel Buchanan of Drumpellier; Professor Hodgson, Edinburgh; Peter Denny, Esq., Helenslee, Dumbarton; the Right Hon. Lord Elibank; and Provost Bennett, Dumbarton.

Colonel Buchanan of Drumpellier, and Peter Denny, Esq., Dumbarton, have become life-members.

THE MICHIGAN BEE-KEEPERS' ASSOCIATION.

At the ninth annual meeting of the Michigan Bee-keepers' Association (America), held December 1, 1875, on the subject of HOUSE APIARIES, Mr. Moore stated that after three years' experience with the House Apiary he could say but little in its praise; that it gave no better results in honey; the bees would swarm even worse than out-of-doors; and that it was ever so much more work to manage bees in the House Apiary than out of it.

The subject being comparatively new, it elicited but little discussion, though it was the general impression among those present, that it was unsafe to invest in House Apiaries from our present knowledge of them.

"Pres. Balch.—I think that most of us will agree that, in this, as in all other delusions, it is better to let well enough alone.

"H. A. Burch stated that the problem was a new one, but thought it advisable to consider it, inasmuch as it was attracting much attention among bee-keepers. If it be altogether impracticable as new seems probable, the sooner we know it the better.

"ON WINTERING BEES.—Professor Balch said, Though I may ride a hobby in the frequent repetitions of my views on this subject, yet I will again repeat them by saying that my experience has been, the less ventilation of the hives during the winter months the better. Nature guides the bees to seal up the hives perfectly tight as the fall months approach. This is the result of instinct implanted in the bee by their Creator who is wiser than we. Upward and lower ventilation produces a draft of air through the hive. This disturbs the bees; those on the outside are constantly trying to get inside the cluster. This causes them to eat, and the result is dysentery. 'Tis true that a little moisture may accumulate in the hive, but no mould will collect that will not vanish during the first week of warm weather in spring. I never disturb bees so late in the season that they cannot again seal the hive up tight.

"Mr. Burch thought the success of Mr. Salisbury (the advocate of ventilation) was certainly a point in favour of his theory and practice. Success is the measure of the value of any method.

"Mr. J. Heddon asked, Has any one made a careful series of experiments with a view of testing this ventilation business?

"Dr. W. B. Southard, in reply, said, 'I have done so; but it wasn't last winter, when my bees all died. Some years ago I gave nearly all my bees an abundance of both upward and lower ventilation; they wintered well, but consumed lots of honey. This winter I removed all honey boards, placed a piece of sacking on top of the frames and covered it with two inches of bran. By using a double thickness, found the lower one 10° the warmer. Wheat bran is an excellent non-conductor, and an absorbent of moisture. Very little moisture has accumulated in my hives thus far. With upward ventilation large amounts of honey are consumed—three times as much as with none at all. 'Tis impossible to keep an even temperature in the winter repository; but we should approximate it as nearly as we can. Bees winter more safely in box hives than in moveable combs.

"Julius Tomlinson read a paper on the 'DIFFUSION OF APICULTURAL SCIENCE.' He advocated the idea of a friendly interchange of ideas and experiences, with a view to mutual benefit and the advancement of apistical science. The discussion of the subject was introduced by Pres. Balch—'Heddon, that calls for you.'

"James Heddon said,—Mr. Tomlinson's paper contains many facts. The principles are good. Who can say aught against the glorious *principle* of communism? But such is not the system under which we live. All conventions in the different branches of business are held for the express purpose of furthering *their* interests. Why are we as *honey producers* so anxious to allure all classes of people into this 'most fascinating (?) pursuit?' Is it not a fact that many of us have failed to realise any profit in real production, and, changing our tactics, *now* toot our horns to others about the wealth that lies beneath it, hoping to be able to furnish them with apiarian supplies? Who are the editors of our bee-journals? Are they retired honey producers, and as such, capable of teaching us who are on *their* road to wealth? Or have they failed as producers and are *now* chiefly interested in hunting up those who are 'in any way interested in Bees or Honey?' Does swelling the ranks of apiculturists, and the consequent increase of production, have a tendency to further the interests of those who are already struggling in the business? And is it a blessing to the new recruits to be allured into as precarious and uncertain a pursuit as ours? Where are the fortunes that Langstroth and Quinby should have made, possessing the *best* ideas of to-day twenty years ago, with no bee-disease to annually decimate the ranks of "bee-dom?" The interests of the publishers of the bee journals are in direct antagonism to our own as honey-producers, as is evidenced by Novice's* refusal to publish my article which was only a fair and candid consideration of this subject.

"The editor of the *Bee-keepers' Magazine*, in his remarks on the report of the Association, says, after a personal attack on Mr. Heddon, 'Were it not for the request that the report be published *entire*, together with our desire to remain free from the charge of garbling, we should certainly have drawn our pen through several "little speeches," not pertinent to the advancement of the cause of bee-culture. The whole drift of Mr. Heddon's remarks seems to be (if he is correctly reported) the result of a studied attempt to discourage all whom he can influence from engaging in bee-culture, hoping thereby to so reduce the number of producers as to cause a scarcity in the market, and thus be able to command fabulous prices for his own honey; and to this end he tries to demolish the bee-Journals by representing their editors as unprincipled men, incapable of instructing others in bee-culture, and in "direct antagonism to the interests of honey-producers," that "bee-keeping don't agree with farming, nor any other business," that "to be successful, one must have a large apiary," &c. In short, he seeks to make the impression that all who advocate a diffusion of knowledge on this neglected branch of industry, have *some* "axe to grind," "want new subscribers," want to sell "apiarian supplies," &c. Now to reply at length to all this *twaddle* would seem like our recognising it as having some foundation in *fact*, which it has *not*; so we will dispose of it in a *general* way, and save our space for more interesting matter.

"As well might we conclude that publishers of agricultural papers, and dealers in agricultural implements, are in "direct antagonism to the interests of" farmers, that farming and stock-raising "do not agree," and that all who advocate a diffusion of knowledge in reference to these subjects do so at "the expense of candour," and that we should, like the Jews and Samaritans, "have no dealings with them," as to take the position of Mr. Heddon in reference to apicultural matters.

"In England and other European countries where bees do not prosper nearly as well as in the United States, it is the boast of the bee-journals that they have no *paid contributors* to their columns, but that knowledge is freely communicated by experienced apiarians for the benefit of the poor cottagers who are everywhere advised to keep bees, so as to lighten their burdens in the toil of life. Free exhibitions are given, where all the processes for successful management are exemplified and premiums of various amounts are awarded as an incentive to all.

"It seems to us that what might be be denominated 'mixed farming' is becoming more and more the order of the day; and we here predict that bee-keeping in the

* 'NOVICE' is the editor of *Gleanings on Bee culture* (America).

near future, instead of being limited to a few, will be practised and enjoyed by persons in all pursuits, and that intelligent farmers will no more think of doing without their bees than of dispensing with their pigs and chickens."

[Note.—We are afraid Mr. Heddon's experience with bee writers has not been a happy one, and that he has become soured thereby, and through the misdeeds of a few has fallen into the too common error of mis-judging a whole class. We are painfully aware that there are writers who, notwithstanding their seeming solicitude for the advancement of bee-keeping as a means of bettering the condition of the rural population of a country, will not hesitate before any meanness which will bring profit to themselves. There are plenty of hive-makers and book-makers, whose sole object is personal gain. Utterly careless of consequences, and devoid of honour, they pilfer the ideas and writings of others, and, after a fashion, complete their works and foist them upon the public. Such unprincipled beings are the curse of apiculture, they 'lie like truth;' and asseverate vehemently whatever will bring grist to *their* mills, professing the while a deep concern for the welfare of the cottager and the well-being of the science they ruthlessly pervert to their own ends. Mr. Heddon is doubtless smarting under a sense of injuries inflicted by these 'wolves in sheep's clothing,' but we think he will upon reflection admit the injustice he has hastily perpetrated by including in so vile a category the world-renowned and honoured names of Quinby and Langstroth. His question, 'Where are the fortunes those gentlemen *should* have made?' is cruelly bitter and sarcastic, as it is well known that both have been the victims of the land-sharks we have already described. Eminently successful as bee keepers when privately engaged, they enthusiastically gave the world the benefit of their experience, becoming, as a matter of course, centres for inquiry, and the diffusion of knowledge, which, stimulating the public mind, brought upon them demands for the means and appliances by which their individual successes had been achieved, and hence they became the slaves of an ungrateful public, and allowed their love of the delightful pursuit, and their desire for 'the diffusion of apicultural science,' to interfere with, and prevent its profitable practice at home. Mr. Heddon acknowledges that twenty years ago, they had 'the best ideas of to-day;' but since they have been during all that time the victims of the wretches we have named, it cannot be wonderful that one has died comparatively poor, and that the other has been reduced to poverty in endeavouring to defend his rights under the patents granted to him. Essentially, an editor of a Bee Journal must have an extensive knowledge of the science of apiculture, or he will be unable to check the evils which would arise from the indiscriminate publication of callow opinions, and the effusions designed to mislead for individual profit, yet at the same time recognising and giving prominence to new facts and theories which tend to general improvement. With this power of discernment, such an one is naturally applied to not only for advice, but for all sorts of bee-keeping appliances, and eventually a business or agency is forced upon him which originally he had no intention of entering upon, and he becomes the servant of a public sufficiently appreciative of the advantages of his guidance, but often sadly unwilling to recompense him for the time and labour bestowed, and not seldom refusing to discharge the liabilities, which may have been individually incurred.—Ed. *of B. B. J.*]

INSTRUCTIONS TO CORRESPONDENTS.

Correspondents are earnestly requested to observe the following rules, as the neglect of them constantly causes serious inconvenience and loss of time.

I. Write only on one side of your paper.

II. Avoid large sheets of paper.

III. Let your lines be sufficiently wide apart to be interlined if necessary.

IV. Write legibly. Above all things write the names of persons and places distinctly.

V. Forward your contributions early in the month.

VI. When your copy fills several sheets and relates to a number of different subjects, be careful never to begin a new paragraph near the bottom of the sheet.

Correspondence.

*** These columns are open to Subscribers, so that their queries, replies, correspondence, and experiences, may be* fully *and* faithfully *recorded; and for the discussion of all theories and systems in Bee-culture, and of the relative merits of all hives and appurtenances, that the truth regarding them may be ascertained. The Editor, therefore, must not be expected to coincide with all the views expressed by the various writers. All Correspondence is addressed to the Editor.*

AN ESSAY ON FOUL BROOD—ITS CAUSE AND CURE.

(*Concluded from page* 181.)

1st. At all times guard against internal damp, either by perspiration or, what is worse, damp from without on the lower edge of the hive, or floor-board, which is generally drawn up into the hive, and gives to the hive a chill that is sure to promote the fungi; it is well here to add that although a hive is affected in this manner from cold and damp combined a hive will not suffer if dry, even although the thermometer sinks many degrees below zero.

It is the same with the bee as with humans, or with the food of man, damp chill or damp heat is injurious to the body, so is it to the food that sustains the body. We are not prepared to state how, but it is sufficient to say it is so, as is well known. Therefore, it is reasonable to suppose (and it is the case) that if damp heat and damp cold injure the bee, bees' meat, and man and his food, that a dry, although cold, atmosphere is more agreeable and sustains life better; so also is a warm, if dry, atmosphere beneficial to both.

It is, then, our duty, both to our property and our body, to guard against extremes of damp cold or damp heat; and this suggests that what is injurious to our bees or to ourselves, or to the food of either, the opposite will, in some degree, if not altogether, remove the injury. If a man suffers from throat or other disease which is supposed to be a fungus, a very high and dry temperature will have a beneficial effect, or, in some cases, a very low and dry atmosphere will be good; so is it with the bees under different disease other than foul brood. A high, dry temperature will in some cases eradicate the disease.

But it must be observed, and not to misunderstand the application, the bee could not suffer a very high or low temperature. But it is not the bee we have to deal with; the disease is not in the adult bee, but in the contents of the hive. So, as I have already stated, expose the combs to both extremes, and it will be found beneficial.

2nd. Foul brood frequently follows immoderate feeding. It is very often, by practical men, recommended to give bees an enormous quantity of sugar in an incredible short space of time, as if no other chance would be got. This is reprehensible, because it raises an undue heat upon the bees; the perspiration is carried to the open cells, and is not evaporated. The bees become suddenly languid and effete from over-fatigue, for it is the case that bees are as much injured by surfeits of sugar, as they are

exhausted through field-work. Feeding bees moderately does not injure them the same way.

The manner in which bees are fed tends to excite the disease; if fed from below, the bees choke the doorway more, and the temperature rises to a greater degree; and if fed with a fountain, or other vessel, it chokes the door still more, aggravating the disease more; whereas, if they are fed from above with an ordinary pickle bottle, they are never excited to an undue heat.

3rd. Foul brood is often raised by not ventilating enough when in transit, as I have already mentioned. Care should then be taken to admit more air than the bees can consume; this will cause them rather to withdraw from the entrance than expanding towards it, causing suffocation, and ultimately foul brood.

4. Foul brood is sometimes caused by putting bees into old yet perfectly clean combs, but in which some honey has been left and which has caught the fermenting principle, the bees appropriating this for the use of their young; the disease gets a hold and becomes, in a short time, virulent foul brood. The bee-keeper ought to be careful *how ever much old combs are recommended they never ought to be used;* if honey has been left in them from the preceding year, they ought to be examined when laid past, all honey extracted, and washed with a solution of carbolic acid. Although the acid does not entirely eradicate the disease, it is an admirable disinfectant and antidote against fungi, and ought to be liberally used in the apiary, being careful, however, not to saturate the bees with it, as it proves fatal if at all strong.

Foul brood sometimes follows in badly ventilated hives, and those having a very small doorway, probably caused by over-heating or bad air; but although I have observed it in such hives I must mention that this is mere conjecture, still, weighed with my other experience, I am almost convinced it is the case, and would recommend ventilating in all stock-hives during summer. It is a fact worth mentioning, that in two hives affected with foul brood at the same time, one was ventilated the other contracted, and the former lessened while the other augmented in virulence.

I could go on to a great length quoting cases of foul brood brought on by over-heating and other causes, but it would only confirm what I have already stated in the foregoing, that the whole cause of the disease may be wound up by saying that whatever excites fermentation propagates the disease, and that no cure will be effected, even by boiling, while the bees have access to a single drop of fermented honey containing fungus or fungus-containing honey; but the combs, exposed to a very high and dry temperature, may be used with impunity. It is to be feared that anything chemical that would destroy the fungi would likewise destroy the honey either for the use of man or the bees.

Feeding with honey is another source from which foul brood ensues; care should be taken to avoid the supposition that honey is the best food for bees. The moment that honey leaves the cell it begins to change chemically, and fermentation is sure to follow in some degree. The entire want of the knowledge of chemistry has prevented me making deeper researches; but the microscope has revealed many wonders, and confirms many of the foregoing statements.

The moment foul brood makes its appearance in any stock, remove it from the apiary and stamp out the disease, as has been described; because, depend upon it, when such a strong odour is emitted as to be so appreciable to the human sense it is much more so to the bees; and as the odour is composed of particles of the disease called 'germs,' then it must be infectious and ready to fix itself upon the first matter that is suitable for its growth. And as nature has always provided something for the extension and propagation of the species, we may rest assured that the hive is as likely as anything else to be chosen as the medium.

It has been asserted that foul brood follows dysentery in bees, and not unfrequently it does happen, caused, however, by the improper preparation of the food of the young through the disorder of the bee, as I have already described.

If the foregoing has failed to exhibit anything new on the cure of foul brood, the reader of this has, however, the lengthened experience of one who has watched it in every phase and stage, and may be the means of causing some more clever person, with a thorough knowledge of the sciences, to make deeper investigations, and so reveal to the world a cure for the bee-plague commonly termed 'foul or abortive brood.'—A Lanarkshire Bee-keeper.

SHALL WE IMPROVE OUR BEES?

I venture to send you the following from the September number of the *American Bee-keepers' Magazine*:—

'A reference to the *Bee-keeper's Magazine*, for July 1874, will refresh in the minds of many the interesting account of Mr. Edward Cori's experiments in obtaining new races of bees, and thereby improving apiculture.

'Mr. Cori, who is a native of Austria, a Bohemian, first published his article in one of the German Bee-Journals (*The Bienenfreund*, or, *The Friend of the Bees*), and it was afterwards translated by Mr. J. W. Aubut.

'In the same number of the *Bee-keepers' Magazine*, the editor calls attention to M. Cori's article, and advises that some interest be taken in the matter in this country. He suggests that the National Bee-keepers' Society take it in hand, and by *concerted action*, accomplish the work of introducing new and valuable races of bees to this country. It seems that the subject was not brought up at the last meeting of the National Society.

'Since I first heard of Mr. Cori's efforts I have been in correspondence with him, and I am assured that he has bees as much superior to the Italians, as the latter are to the common black bees.

'I give below a few paragraphs translated from some of his letters. After over a year's experience with the Cyprian bees, Mr. Cori says: "The race of the island of Cyprus is, in every respect, the noblest known to us; they are fully equal to my first impressions of them." He further says, "My venerable protector, his lordship, Earl Rudolph Colovrat Cravorsky—who, however, sells no bees—and I, are the only ones in Europe who possess this race. I shall sell some queens during this year, 1875, to return me a portion of the large sums which I have expended in importing the bees from Asia. I cannot, however, make a business of raising queen-bees, as I am an old, ill man, and possess no time, on account of my condition, to breed the race in a greater degree."

'Mr. Cori states also, that he has received offers from amateurs in Europe, of a sum equal to $21.65 U. S.

currency for single Cyprian queens, and that he cannot be sure of being able to furnish queens this season to any one in America. He wrote, "If you, or one of your countrymen will visit me, I will sell you some Cyprian queens, but without personal supervision, I cannot send this precious race to your country. They never would reach you alive." In a subsequent letter, he said, if I would send him a shipping-box, containing some bees, he would endeavour to get Cyprian queens to me alive, but will not himself assume any risk as to their safe arrival. It seems that Mr. Cori is not experienced in preparing queens for shipment, and hence it would be doubtful about receiving them alive, if he should attempt to send them to this country.

'In view of the difficulties in the way of successfully importing these races without the personal supervision of some bee-keeper, and considering the apparent desirability of such races as the Dalmatian, the Smyrnian, and more especially, the Cyprian bees, I have concluded, if sufficient interest in the subject is manifested in this country, to visit Mr. Cori, and either raise and send queens to this country, or, after purchasing queens, endeavour to bring them here safely, and thus effect the introduction of an improvement in our races of bees.

'I make the following offer to the bee-keepers of my country: I will give my time to the undertaking, provided others interested in the matter will agree to pay my necessary travelling expenses, and these I would agree to make as light as could reasonably be expected. I would endeavour to fulfil the mission to the best of my ability, and I believe I am warranted in having confidence that it would prove a success.

'Believing this matter is one of vital interest to every enthusiastic bee-keeper, and to all who really desire to improve the condition of apiculture, and that, as mentioned elsewhere, "all it needs is *concerted action*," I earnestly request the bee-keepers of our land to give it careful consideration, and then give an expression of their views on the subject.'—Frank Benton, *East Tenn. University, Knoxville, Tenn.*

Why should not we as well as our American cousins, '*improve our bees?*' I do not propose, like Mr. Benton, to travel in search of these, but I believe I can obtain a stock of Cyprians, which I have a chance of placing on an island, about 70 acres in extent, in the Bristol Channel, where they would be from 7 to 8 miles distant from other bees, and where consequently queens could be bred with a certainty of their mating with their own drones—the cost of getting these bees would be considerable, as also would be the time, and boat-hire to and from the island. However, I am willing to undertake it provided I can get fifty gentlemen to take one queen each, the price of which will be 1*l.* 1*s.* Those who wish to assist in introducing this valuable breed of bees will at once notify to me their willingness to take one or more queens, and when the fifty orders have been received I shall at once commence operations. On the same subject the editor of the Magazine writes the following:—

'We call the especial attention of all bee-keepers, and especially queen-breeders, to the interesting article in the present number of the Magazine, entitled, "Shall we improve our bees?" To every intelligent and progressive Apiarian, this proposition admits of no other than an affirmative answer; but, as to the methods to be adopted to bring about the desired improvement, there may possibly be some diversity of opinion; and on this latter question we propose to give a few brief thoughts.

'All the prominent breeders of horses and cattle throughout the world depend mainly on the importation of choice breeds from other countries, in order to improve their own, and to avoid "in-and-in" breeding. The same remark applies to the rearing of fine poultry, and all animals on which men depend for profit.

'When we attend the agricultural fairs and behold with our own eyes the magnificent specimens of improved stock, and hear with our ears the thousands of dollars offered for single animals, we begin to wake up to the vast importance of this subject. Now it would be contrary to all analogy to suppose that bees may not be improved in a similar manner, and besides, our experience with the Italians fully confirms the fact that they can. There are many varieties of the honey-bee found in different parts of the world, and for some years past it has been known that at least two varieties of rare excellence inhabit the middle portions of Western Asia.

'Four years ago we induced an importer of Angora goats to try and secure some of these bees for us; but being no "bee man," after two trials, in both of which the bees died, he abandoned the undertaking. Now, the importation of bees from distant countries will not be attended with the risks, losses, and disappointment that mark the early history of the introduction of the Italians, for the proposed pioneer in this undertaking is perfectly familiar with the recorded experience of former importers, and himself a successful breeder and shipper of queens. We regard the proposition of Mr. Benton as exceedingly liberal, and as such, commend it to the careful consideration of American bee-keepers. Let every one interested in raising the beautiful science of Apiculture to an equal rank with the other industries of our land, contribute liberally to this undertaking, and not leave it to the slow and doubtful action of Conventions. Write us *at once* the amount you are willing to contribute, and by the time our next number is ready for the press, we believe the necessary funds may be raised, and in due time Mr. Benton proceed on his journey.'—O. Poole, *Uphill, Weston-super-Mare.*

THE BRITISH BEE-KEEPERS' ASSOCIATION.

Many friends that I ask to become members of this Association inquire of me, what benefit they will derive by becoming members? I am certainly at a loss to tell them, unless they attend the annual exhibition: perhaps the Committee will inform them in the circular they are preparing to send out.

Many members also complain that they have received no report from the Committee of the first year's working of the Society, showing how the funds, &c., have been expended, and the position of the Society at the end of the first year. I think an annual report should be furnished to the members, as they will not continue subscribing unless they know how their money is expended.

I think the year should expire on December 31st, as all accounts connected with the Exhibition can be settled by that time.—Wm. Carr, *Newton Heath, near Manchester.*

JUDGES.

I am not about to reopen what I hope is now a closed correspondence in your columns, when I try to bring out of an unhappy incident, the good it may do us. In common with all who have the happiness of a personal acquaintance with Mr. Fox, I grieved at a decision, on the part of the Judges, which seemed to cast an aspersion on that gentleman's honour. But I venture to say that no blame whatever could

be attributed to those gentlemen who kindly did their best to decide on the complicated claims of the numerous exhibits; inasmuch as it was simply impossible for men to go carefully and fully into the matters to be considered in the time and way which was allotted to them. Work which demanded at least one whole morning was compressed, perhaps inevitably, into a brief preliminary hour before the public arrived. The Judges were hard at work even for some time afterwards; and their conferences and deliberations invaded by a buzzing crowd of persons like myself, who, having no exhibits, and not knowing what they were doing, necessarily interfered with the difficult and delicate work imposed upon them. Had they been quite alone, as they should have been if possible, with free and frequent consultation one with another, and the opportunity of closer examination where doubt existed, they would certainly have had the mysterious octagon turned up, and verified or disproved their suspicions as to its condition. For my part, I think every one of the Judges deserves a silver medal for so pluckily conducting an exceptionally difficult business under such trying circumstances; and when silver medals are flying about, lest some of them should wound or blind any of our future Judges, I would suggest that they should be imbedded in little bags of hive sawdust, to minimize the danger from their sharp edges and cruel milling.

Wishing you, sir, and all our fraternity, the compliments of the season.—F. Gell, *Llysuen Rectory, R. S. O., 4th January*, 1876.

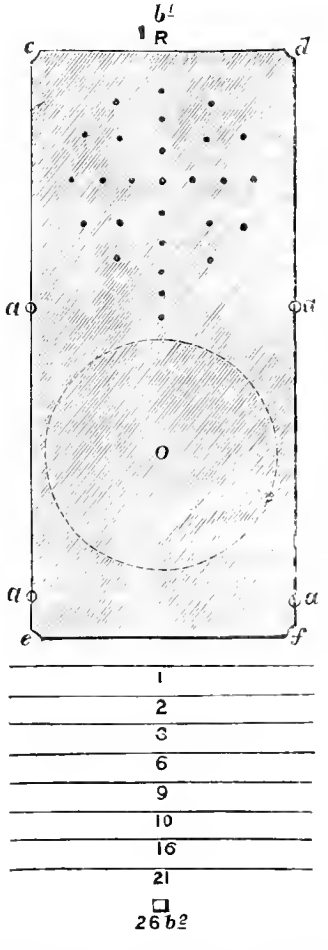
BEES CASTING OUT RIVAL QUEENS.

The opinion among bee-keepers in general, and even among 'authorities' who ought to know better, and to whom we look for correct information on all points relating to bees and 'the wonders of a bee-hive,' is, that when two queens or princesses fight as rivals in a hive, the one that is vanquished is taken by the worker-bees and cast or carried out of the hive.

This opinion is, as a rule, erroneous. Worker-bees never carry or cast out a dying queen. What takes place is this:—When two queens meet in a hive they struggle with each other till one gets the chance, and with a vigorous thrust stings her opponent. The wounded one gives no further resistance, but at once makes for the door of the hive, crawls slowly along the floor-board, often attended by a few bees, who surround her and pay her every respect, till she drops off the edge of the board to die. The conqueror, after emitting once or twice the well-known peculiar calls of queens, takes possession as reigning monarch, and all goes on serenely again in that hive.—J. S., *Arbroath, Jan.* 20, 1876.

GRADUATED FEEDING-STAGE.

The feeding-stage here described may be found of use to those who wish to know with perfect accuracy through how many holes they are feeding their bees. The engraving represents the middle slat of the crown-board; the dotted line, marked O in the centre, a 2-inch feed-hole bored in it. *c d e f* is the feeding-stage, made of mahogany or rosewood veneer, well waxed, 1-20th of an inch thick, or of vulcanised india-rubber. It is 5 inches long, $2\frac{5}{8}$ of an inch wide, and is kept in its place by four small



screws *a a a a*, so placed at each *side* that their heads lap over the edge of the stage, but allow it freely to move either way as far as the two stops b^1 b^2, which are small square brads standing up 1-20th of an inch. The stage, as represented, entirely covers the feed-hole. Move it until one hole comes over the feed-hole, which is seen at once by holding it up to the light; draw a line along its edge with a hard pencil, and mark it 1, and so on until the whole is graduated as represented, and the stage stopped at b^2, when 26 holes will be over the feed-hole.—*J. H., Vale of York.*

THE STANDARD FRAME.

In the first place, whose frame stands the best chance of being adopted as the 'Standard?' Neighbour's, Langstroth's, Pettit's, Hale's, 'Slindon,' or 'Sussex,' &c. &c.? Most of us who are really interested in the matter have something to urge in behalf of our own especial frame, as well as system of management. I see it stated (p. 150) 'there can be no hardship in the matter.' Now, as there is

at the present time, at the lowest estimate, a thousand pound's worth of hives on hand at the various makers, it will certainly press a little hard on that class if their hives come into the market next season under the disadvantage—real or fancied—of not having the Standard Frame. It matters less whether our neighbours' hives are of the exact size of ours, so long as the frames in our own apiary are all interchangeable. Is there any likelihood of the leading apiarians in England and Scotland agreeing as to the *exact* length and depth of the frame? We must not forget the time-honoured adage, *Quot homines, tot sententiæ* — So many men, so many opinions. Again, I would ask, is it likely the great majority of bee-keepers will adopt a frame necessitating an entire change of hives in the apiary to suit the requirements of the Standard Frame; and that, too, for the sake of a somewhat questionable advantage—questionable, that is, when the cost of a new set of hives and trouble of transferring is considered? Would the Standard Frame suit all localities alike—the north as well as the south, districts affording scanty pasturage as well as others flowing with honey? At least, if a Standard Frame is necessary, would it not be advisable to postpone it until our next Show? With regard to the proposition 'that every district has its Extractor,' a serious objection suggests itself—namely, the great facilities that would in that case be given to the introduction and spread of that terrible scourge foul brood. Of course no one would care to use an Extractor that had just emptied combs from an infected apiary *if he knew it*; but it sometimes happens that the insidious disease lurks where least suspected. As our Editor is now in a position to supply an Extractor at a reasonable cost, let each possess his own. If made two or three inches larger, it will be of far less moment as regards extra expense than to make it imperative that all frames be of one uniform size to fit *it*; even then it need not be 'clumsily large.'—Alfred Rusbridge, *The Apiary, Sidlesham, Chichester.*

THE GROUND IN FRONT AND ROUND BEE-STANDS—THE STANDARD FRAME.

On page 182, C. H. E. 'asks for information, what is the best thing to have under and in the front of bee-houses?' I unhesitatingly answer, plant *Arabis Alpina* (or as they call it in this district, 'White Alyssum') on slightly raised beds all round the bee-stands. This is one of the most useful bee-plants we have, as it flowers early in spring, from March to May, and yields quantities of both pollen and honey. When in full bloom, you can scarcely see a leaf for the number of white flowers, and in a morning I have seen the flowers so covered with bees that you could scarcely see a flower, from the great number of bees busy working on them. The *Arabis Alpina* looks well at all seasons of the year, and it affords the bees a clean, dry alighting-place, when they miss the floor-board on returning laden to the hive, and, when rested a short time, the bees can easily rise and fly to the alighting-board, instead of being chilled on the damp, cold earth, that we see so often under the hives of careless bee-keepers. Another great advantage of the *Arabis Alpina* is, that it is no trouble or expense when once planted, and is so hardy that it lasts for years, and always looks well. I have it round all my bee-stands, as well as edging round the walks. Now is a good time for transplanting it.

The Standard Frame should be made for a hive 13½ in. from back to front inside, by 10 in. deep; bar-frames fixed 1 $\frac{7}{16}$ in. from centre to centre, and the hives to hold from 9 to 20 bar-frames, according as different people desire.—Wm. Carr, *Newton Heath Apiary, near Manchester.*

STANDARD FRAME.

Believing with you that in the selection or adaptation of a Standard Frame for England unanimity of sentiment is desirable, I have much pleasure in stating that the frames I use and esteem, measure 15½ in. long outside, and 8 in. from underside of top bar to ditto of bottom rail, which is $\frac{3}{16}$ in. thick. The top bar is ½ in. thick, with horns $\frac{3}{4}$ in. long for suspension, the ends being parallel. Into these I sometimes fit three small frames, which can be removed and sold separately, full of virgin comb, or fitted into a nucleus-box for the raising of queens. The roofs, or raises, of my hives are now filled with clean wheat straw, and the quilts are beautifully dry notwithstanding the outward atmospheric changes. Now, wishing you every success, I am, &c.—Jabez Kendall, *Widmore, Bromley, Kent, Dec.* 15, 1875.

FLOORS IN FRONT OF HIVES.

I beg to inform 'C. H. E.' that fine ashes (those from the kitchen cinder-sifter are the best), put under and round the hives, appear to answer very well the object he requires. I first dig out the earth a foot deep, fill up the hole to within 3 inches of the top with small stones or loose gravel, on that place two pieces of wood about 4 inches by 3 inches for the legs of the hive to stand upon, fix them perfectly level by a spirit-level or mason's square, and fill up with the ashes, wet the latter, and press them firmly down. The stones form a drain, and the ashes are always warm, dry, and free from weeds. The pieces of wood should be well covered with tar or some such wet protecting substance before being used.—F. H. Stevens, *Reading, Jan.* 4, 1876.

TAKING HONEY FROM SKEPS.

As you wish to know my plan I will describe it as well as I can. I take my stock of bees and drive them into an empty butt; if there are sticks in, I take them all out, then give the hive a gentle tap or two on the ground, so that the combs fall out altogether. I then take my combs out and cut off the honey, and lay it on one plate and the spare combs on another. When I have done that I take the latter as I laid them down, get three or four pieces of 14-gauge wire, put them through the hive; then I thread on my first comb, put the wire through, then another comb, and keep putting my combs on and pushing the wires through, till I have

got them all on. I then push the wires through the other side, and when I have all my combs on I adjust them with ½-inch pieces of wood. If the combs are not neat and straight I straighten them, or get other combs. I do not like sticks; so when the bees have fastened the combs to the hive I pull out the wires. As in South Devon I can get straight combs I put in no others, and can adjust them to a hair's breadth. Please to tell me what you think of the plan.—J. WRIGLEY, *Rochdale, Dec.* 14, 1875.

[The plan of breaking out the combs into a heap is not one we should recommend, as much honey must thereby be wasted where the fractures take place. Your letter has shown us the necessity for a straw-storifyer, by means of which the upper parts of the combs may be removed as in the celebrated Stewarton system, see p. 185.—ED.]

POLLEN FOR EARLY SPRING FEEDING.

In the December No. of *Journal*, p. 155, near the bottom of the right-hand column, your Danish correspondent cautions us to 'be very careful in the use of meals or flour as a substitute for pollen in the spring;' and, as he is evidently well up in bee matters, may we beg of him to give his reasons for the caution, and his experience in regard to the use of artificial pollen generally, for the benefit of the bee-keepers of—GREAT BRITAIN, *Jan.* 22, 1876.

DESTROYING WASPS, &c.

In the last number of the *Bee Journal* I saw mention of cyanide of potassium for killing wasps. It is a very deadly poison, and should, of course, be used and kept with great care, and should be introduced into the hole of a nest by means of a split stick. I made several experiments in September, to watch the effect of it. Having put fruit or sugar on a floor-board to attract wasps; lifting the entrance, I put a hive, with centre hole, over them; then one, two, or three glasses, with a hole in each, except the top one of all. Quickly introducing a small piece of cyanide of potassium, when some had flown up to the light, I found, within one minute, every wasp began to wipe his face with his forepaw, and in about another minute each fell down; but the effect for some time seemed like chloroform. I observed, if they fell near a crack of air, they seemed to revive, or live much longer, and that if the air was changed such was the effect; but that, if left for some time under the influence, every one died. A hornet took much longer to die; and after keeping as far off as possible turned round and round, as if intoxicated, before he yielded up his troublesome existence. Perhaps this may interest some of your readers.—C. J. STRACEY, *Buxton Vicarage, Norwich.*

ROUSSEAU AND HIS BEES.

I think modern bee-keepers will not be sorry to find themselves in such good company as that of Jean-Jacques Rousseau, and will read the appended extract with pleasure; and if there are any who in some matters regret his influence, they will welcome this redeeming point in his character. Charity covers a multitude of sins, and charity has surely other objects than mankind only. Whether his tender soul allowed their destruction *more rustico* or not, or whether the ghastly business of the hecatomb was deputed to another while he turned his back and wept, on this point the autobiography is silent. I have not heard that a century and a half ago any Royal Apiarian Society for saving life existed, but if there had been any such, assuredly we should have heard of poor Jean-Jacques as its first President.—WILLIAM GREATHEED, 58 *Guildford Street, Russell Square, 20th January*, 1876.

'I had another little family at the end of the garden;* these were bees. I never failed, and sometimes "Maman"† went with me, to pay them a visit. I interested myself much in their work. I used to be greatly amused to see them come back from their plundering with their little thighs sometimes so laden that they found a difficulty in walking. The first day or two curiosity made me indiscreet, and two or three times I was stung, but after that we made acquaintance so satisfactorily that however near to them I came they let me be; and however full the hives ready to swarm were, I was sometimes surrounded with them, I had them on my hands or on my face without any one of them ever stinging me. All creatures distrust man, and they are quite right in this; but when they are once assured that he does not wish to harm them, their confidence becomes so great that he must be worse than a barbarian who abuses it.'—*J.-J. Rousseau's Confessions*, Pt. 1, Bk. vi. (1736).

HOW TO FEED WITHOUT BEING ANNOYED WITH ROBBER-BEES.

I found, on talking with the many bee-keepers who were at the Crystal Palace on the 21st of last September, that much annoyance was experienced from robber-bees while feeding. I enclose, therefore, the plan I have followed out with great satisfaction, which, perhaps, you will publish for the public good.

Things wanted:—A wide-mouthed pickle-bottle, filled with a pint of syrup, and the mouth tied over with a piece of coarse linen; a bit of perforated zinc, as large as a crown-piece; a six-inch flower-pot, and some soft rags.

How to use them:—Open the feed-hole of the stock-hive; place flower-pot on it so that both holes fit; put piece of zinc at bottom of flower-pot; invert the bottle of syrup, and pack with bits of soft rags between bottle and flower-pot.—W. D. WHISTON.

THE INNOCENT PILFERER.

Not a flower can be found in the fields,
Or the spot that we till for our pleasure,
From the largest to least, but it yields
The bee, never wearied, a treasure.

Scarce any she quits unexplored,
With a diligence truly exact;
Yet, steal what she may for her hoard,
Leaves evidence none of the fact.

* Rousseau's earlier favourites were pigeons. These were so tame that he 'could not appear in the garden without immediately having two or three on his arms or head.'

† This was a pet name for an intimate lady friend.

Her lucrative task she pursues,
And pilfers with so much address,
That none of their colour they lose,
Nor charm by their beauty the less.

Not thus inoffensively preys
The cankerworm, indwelling foe!
His voracity not thus allays
The sparrow, the finch, or the crow.

The worm, more expensively fed,
The pride of the garden devours;
And birds pick the seeds from the bed,
Still less to be spared than the flowers.

But she, with such delicate skill,
Her pillage so fits for our use,
That the chemist in vain with his skill
Would labour the like to produce.

Then grudge not her temperate meals,
Nor a benefit blame as a theft;
Since, stole she not all that she steals,
Neither honey nor wax would be left.

COWPER.

Foreign Intelligence.

FRANCE.

France has proved rather prolific of bee literature of late years, both 1874 and 1875 having brought to light four treatises each.

The latest apicultural statistics, issued at the end of 1873, give the number of hives *en activité* as being 2,072,689. The quantity of honey yielded during the same year was computed at 10,587,090 kilos., and 2,736,252 kilos. wax. The gross value of the former was estimated at 14,772,780 francs, and at 7,320,059 francs the latter, or 22,092,839 francs together. The previous statistics brought the total value to about 21,000,000 francs, thus showing an increase of late years. Twenty years ago the gross apistical value was about 14,000,000 francs a-year. At that time France bought largely of other countries; now this is no longer the case.—*Apicolteur.*

GERMANY.

Official reports give 2,333,484 as being the number of hives in Germany.

ITALY.

This month's *Apicoltore* contains a long review of bee culture in England by its special London agent.

ECHOES FROM THE HIVES.

Grantham.—I am sorry to say I continue to hear most sad accounts of the great loss of bees in our neighbourhood, hive after hive (skeps) turned and all the bees dead—starved of course. When questioned why not have fed the poor things, and so keep them from starvation? the answer is, 'Oh, we never think of it. Can't have all that bother with bees.' There's a field for us?—R. R. GODFREY, *Grantham.*

Dundee.—Now I shall give you a bit of information. I opened a bar-frame hive on the first day of the year and found a *fine nest of brood*, mostly sealed, from six to seven inches in diameter. This hive got a few warm feeds a few weeks before to encourage a flight when signs of dysentery manifested themselves, but except this there was nothing uncommon in connexion with it. Other hives I have since examined contain brood and newly-hatched bees; and as I noticed the same thing last year just after the long storm, I suspect that it is rather the rule than the exception for bees to go on hatching throughout the year.

Cockermouth.—'I like the *Journal* so well that I am posting it to friends likely to become subscribers. Although the season has been *bad*, we must not lose heart: there is a silver lining to every cloud.'—J. L.

Queries and Replies.

QUERY No. 139.—I've been thinking, if you were to supply the frames minus the hives it would be very convenient, and, I think, a great inducement for cottagers to adopt the bar-frame principle, as most would have time to nail a hive together, but the frames take time and must be made accurate. I will not trouble you for an answer by post; perhaps I may see something of it in our next.—P. SKINNER, *Swanley, Jan.* 19, 1876.

REPLY TO QUERY No. 139.—The above suggestion is more easily made than effectually carried out, as, after the frames are completed, a packing-case is necessary to send them out in, and that might as well be a hive as anything else. The parts of the frames could be sent out to order, but even then a frame-block will be necessary to put them together with. Can our correspondent overcome these difficulties?—ED.

QUERY No. 140.—Yesterday I opened one of my hives to see how the frost had served them, and although there were two unsealed combs of honey within reach of the cluster, and a little barley-sugar, left of what I gave them before the frost set in, the bees were all dead. Can it be that the cold was too much for them? The hive was nothing like full, scarcely a quarter. They were in a Sherrington hive, and had been 'wintered' as recommended, by a quilt cover and folds of flannel, &c., and had been fed in the orthodox manner previous to that. It is the stock I made by uniting the bees of two other colonies in the early autumn. They have evidently not perished for want of food. Any hints as to the cause will be valued.—J. H., *Devon, Jan.* 19, 1876.

REPLY TO QUERY No. 140.—From so small a quantity of comb having been built, it would appear either that the number of bees when hived was small, or, that they were old and comparatively incapable of the labour demanded in comb-building and brood-raising, and that having exhausted their vitality in making combs sufficient to cluster in they died, leaving no young bees to take their places. It is evident that the cold killed them through their inability to keep up the temperature within their cluster.—ED.

QUERY No. 141.—What is the proper time to place supers over a bar-frame hive? By what symptoms shall I know that the time has arrived? I have a bar-frame hive, made from directions in the *Bee Journal*, quite full of comb, and 'all right' up to the present time. Of course I had to feed liberally. I used one of your vulcanite feeding-stages, but I found that the bees propolised the holes occasionally; after I had cleared them they took the food in again, and again in a day or two the holes were stopped. I found this so at the two hives where I used the vulcanite stage, so I turned the vulcanite so that the hole that indicates the number of small holes over the bees was over the centre hole, so that the bees could feed through the one large hole. Are not the holes in the vulcanite a little too small? I made some stages exactly similar to yours out of zinc, the holes a little larger, which seem to answer very well.

My six hives were all right and healthy a few days since, and I expect are so now, but have not seen anything of the bees, or in any way interfered with them, during this frosty weather.—J. T., *Lower Fant Road, Maidstone, Jan.* 13, 1876.

Reply to Query No. 141.—When swarms are not desired the supers may be put on when it has been ascertained that the hives are well filled with combs, have large and increasing populations, and plenty of eggs and brood in all stages of development, and that the ingathering of honey from the orchards and fields is in excess of the every-day requirements of the bees themselves. Unless these conditions exist, it will be of little use applying supers at all. The 'symptoms' will be a daily increasing bustle and commotion at the hive entrances, the arrival and departure of increasing numbers of worker-bees, and the gradual increase of the hive's weight. But by far the best means of ascertaining the condition of the stocks will be by a careful examination of them; when, if the time be fortuitous, it will be well to shave off the sealing from all the honey-cells, causing the honey to run within the hive, which will ensure that many bees shall gorge themselves with the sweet liquid, and, having no empty cells in which to redeposit it, the probability is that they will at once take possession of the supers and store it there.

It is evident that in using the vulcanite you also used some muslin or leno tied over the mouth of the bottle, in which case the bees would (unless the syrup be very thin) be unable to reach it after a little time, in consequence of the leno becoming concave. The bottle is intended to be inverted, when full, upon a little tin shovel, and to be set down upon the vulcanite or zinc and the shovel to be withdrawn, when the liquid will be in actual contact with the holes, and if not inclined to crystallize will not be refused by the bees except in very cold weather. There is no merit in the vulcanite beyond its non-conductivity, and its non-liability to corrosion which might poison the food and injure the bees. The holes may be easily enlarged with a hot needle, or by riming (boring) with a tapering, square or triangular, awl. So that the bees are healthy and well supplied with food, you cannot do better than allow them to remain quiet; of course taking care that their hive entrances do not get stopped up.—Ed.

Erratum.—In Mr. Wood's paper on Foul Brood, *for* 'salicyl acid' *read* 'salicylic acid.'

NOTICES TO CORRESPONDENTS & INQUIRERS.

Giotto Hive—is a poor imitation of the Huber Hive, without the advantages of the means by which the latter is kept in order. The economical directions given in regard to the material for their manufacture are impracticable in this country, as the length of deal planks is not governed by the desire of the would-be purchaser, but by a trade standard. To obtain a deal or plank of 12 feet 2½ inches in length, one much longer must be purchased, or an increased price paid to cover the loss consequent on the waste end cut off. The price quoted (2½*d.* per foot run) for well-seasoned deal, 15 inches wide, is much below that usually charged in the trade.

J. S. Nunny.—When fitting frames with empty combs for the reception of swarms it will be better not to fill them all, but to leave a little comb-building for the bees to perform. Putting swarms into hives fully combed and without brood, is sometimes fatal to the success of the colony; for having no comb to build, and no brood to feed, the bees are all at liberty to collect and store honey in the combs, which, in a good swarming time, they will do so rapidly as to choke the cells with honey and prevent the deposition of eggs, and the consequent production of brood. Filling every alternate comb, or combing each frame to the depth of three inches will be ample aid for a swarm. In such a case it is unnecessary to insert drone-comb, the bees will build sufficient.

Carolus (Upper Tooting).—Before the introduction of the quilt, in lieu of the crown-board, it was dangerous to paint single-sided hives, as the damp which was generated inside, in winter, saturated the wood, and the paint prevented it drying out. Now, when the quilt is properly applied there is no dampness, and the hives may be painted, if desired. The Cottage Woodbury is made double-walled, the outer walls being fixed to the strips which form the dead-air spaces. By this arrangement vermin are effectually excluded from the space between the cases, and no air can circulate. The porch must thus be fixed to the outer case. If you mean, may the porch or 'verandah' be fixed to the super cover (the upper story of the hive, in fact)? we say yes, if you are so minded; but it will be in an awkward position, and liable to be damaged whenever the upper story is removed.

T. Stickland.—We hold the opinion that in introducing a queen to a broodless hive, it is safer to encage her so that she can obtain a supply of honey sufficient for her wants. Where there is hatching brood there will be plenty of young bee-nurses: and they, not knowing the queen to be an alien, will feed her until she dies of confinement, or until another queen is hatched out in the hive; but when all the bees are old ones the case is different, and the liability to encasement (which usually ends in death) much increased.

G. H.—The superstition referred to is contained in Diggess's *Prognostication Everlasting of right good effect* (London, 1596), where we read, 'It is affirmed by some when New-yeares day falleth on Saturday [as it did this year], then a mean winter doth ensue—summer very hot; a late harvest; good, cheape garden hearbes; much burning; plentie of flax, hemp, and *honey*. Old folks shall dye in most places; fevers and tercians shall grieve many people; greate muttering of warres,' &c. &c. We shall have cause to rejoice if the prognostication respecting the produce in which we are especially interested prove a correct one.

Edingthorpe.—Strong stocks, during a period of activity, generally busy themselves in clearing the hive of whatever is offensive to them, hence it is not singular that an intruding earwig should be roughly 'handled' by the bees, and stung to death, but it is somewhat novel for a bee to leave its sting in so small an insect.

Bee-flowers.—I shall be glad if some bee-master will, in your next issue, be kind enough to give a list of such annuals, suitable for a small garden, as bees most delight in. I love to watch them working, and therefore want to keep as many as I can near their hives.—A Novice.

M. Ambroizia, Moistrana.—The bee you mention is comparatively unknown here. Send prices and full description by all means.

Covers for Binding the British Bee Journal *may be had, price* 1*s., at the Office, Hanwell, W.*

OUR WANT AND SALE COLUMN.

WANTS may be advertised at 2*d.* per line of eight words, for one insertion, renewable in succeeding months, for 3 months, without alteration, for half price. Replies must contain stamped directed envelope, or they will not be forwarded.

All monies must be deposited with the Editor, who will communicate with the vendor, when, if a sale be effected, one penny in the shilling will be charged on all amounts not exceeding one pound, and one halfpenny additional will be charged on every shilling beyond that amount, and the balance forwarded to the vendor.

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The carriage of all articles sent, except such charges as are incurred in first placing them on a railway, must be paid for by the depositor, and if not equal to the description given, the advertiser must pay the cost of their return.

The postage of small articles, such as books, must be pre-paid by the sender. The name of the town or country in which advertisers reside, and the name of their railway, should be mentioned as a guide to probable cost of carriage.

No advertisement must contain more than sixteen words. P. O. Orders to be made payable to C. N. ABBOTT, office of *British Bee Journal*, Hanwell, W., London.

No.		s.	d.
215	Wanted.—Numbers 5, 6, and 9 of the *British Bee Journal;* also the Index to Vol. I. Double price given if clean and in good condition.		
216	Wanted.—*British Bee Journal* for Sept. 1873, Oct. 1873, March, 1874, and April, 1874.		
218	Several pure Ligurian and hybrid stocks for sale, in bar-frame hives, price according to strength, &c.—Shropshire.		
221	Wanted,—Stock of Pure Ligurians in exchange for Two Stocks of Black Bees. Lincolnshire.		
223	Three Stocks of Bees, strong, and fair amount of Honey. Bar frames. Each	20	0
224	Two Stocks of Bees in straw skeps. One Neighbour's. Good weight. G.W.R. Each	12	6
225	Three Stocks of Hybrids in Bar-frame Hives, with moveable floor-boards, and on legs. Three windows in each hive. Will stand the winter. Leicestershire. Each	30	0
226	Four Stocks of Hybrid Bees, in Improved Cottage Woodbury Hives. Heavy enough to stand the winter. Leicestershire. Each ...	40	0
227	Stock of Pure Ligurians, queen 1875, in Woodbury hive, with stand, super, and cover, complete. Good condition. Gloucestershire ...	84	0
228	Two Carr-Stewarton Body Boxes, been used, straw. Each	7	6
229	Two ditto, supers, new. Each	7	0
230	One Huber Leaf Hive, good as new	21	0
231	One pair Neighbour's Sectional Supers, new ...	5	0
233	One Stewarton Set, new	15	0
234	Two Neighbour's Supers in sections. Quite new	5	0
235	Stock Pure Ligurians in straw skep, will travel	42	0
236	Home-made Hive, Quinby frames, two division boards, collateral principle, super cover and floor-board (cheap)	15	6
237	Walton's Extractor, in frame, &c. takes frames 13 by 18. Photo forwarded	55	0
239	One Stock of English Bees in a Woodbury Hive, combs all straight, just the thing for Ligurianising	42	0
242	Six Float Feeders, each 1*s.* and Ten Pint Feeding Bottles, 4*d.* each.		
243	Several strong stocks of Black Bees, in flat top straw from 15*s.* to 21*s.* each. Lincolnshire.		
244	Wanted.—Strong, healthy skeps of Black Bees. Weight no object, if full of bees and plenty of comb.		

WANT AND SALE COLUMN—CONTINUED.

No.		s.	d.
246	Honey.—About 40 lbs. of purest drained nectar, from supers from the apple orchards of Herefordshire, in white jars of about 2 lbs. each, at 2*s.* per lb.		
247	Honey.—A few glass jars of splendid Honey and Comb from Devonshire supers. Very choice. Per lb. 2*s.* Glasses, 1*s.* each, may be returned.		
248	For Sale.—Starling's new 4*l.* Honey Extractor. 70*s.* will be accepted.		
249	Vol. I. *British Bee Journal*, neatly bound in cloth	18	6
250	Pure heather and clover Honey (cold drained) 2*s.* per lb. in small tins, package free. Aberdeenshire.		
251	Wanted.—Nos. 7 & 11 *British Bee Journal.*		
252	Wanted.—Vol. I. 10*s.* 6*d.* given for complete copy, bound in cloth.		
261	Bee Boxes, of japanned tin, ventilated (been used), for carrying fumigated or driven bees from condemned stocks. London. Each ...	2	0
262	Mellilot Clover Plants, per dozen	2	0
263	Solid Barley Sugar in 1 lb. bottles, with stick in centre as recommended, per dozen, bottles included	10	6
265	For Sale.—One Pettigrew Stock, 32lbs. ...	24	0
266	One Pettigrew Stock, 53 lbs.	30	0
267	One Bar-frame Hive and Bees (new) 27lbs. ...	22	0
268	Three new Bar-frame Hives, each	6	0
269	One Bar-frame Colony, 27 lbs.	22	0
270	Offers wanted for 'Journal of Horticulture,' posted free, Friday nights, per 3 months, payment in advance.		
271	150 lbs. of pure run Honey, in tins containing 25 lbs. each, 3*s.* each charged for the tins, and the same allowed when returned.		
272	For Sale.—A new Carr Stewarton Hive, complete; three boxes, crown-board, and floor-board	42	0
273	Bound Vol. II. *British Bee Journal*, almost new	8	6
274	Wanted.—Index for Vol. I. *British Bee Journal.* Two Shillings will be given.		
275	Starling's £5 Honey Extractor, almost new ...	80	0
276	For Sale.—Twelve Stocks of English Bees, swarms of last year, in excellent condition in flat topped straw skeps, together or separate. Hampshire. Each	12	6
277	Raspberry blossoms for Bees—strong canes, red and white, per dozen	2	0
278	A Cottage Woodbury Hive	15	0
279	A Woodbury Hive, 11 bars	7	6
280	One 10 bar Hive, double-walled, wide-shouldered, bottomless frames; reversible floor-board, four legs, handsome super cover and roof. Very cheap	30	0
281	For Sale.—Twenty-four Vols. of the 'Journal of Horticulture,' minus 9½ numbers and four Indices, containing the valuable Bee experiences of the late Mr. Woodbury. Price of the whole	42	0
282	For Sale.—A number of Straw, Super, and Stock Hives, not new but in healthy condition, also Bee-books, &c. Might exchange part for book offers. Salisbury.		
283	Wanted.—Honey in Comb for Table, in Glass Supers of six to ten pounds each.		

TO BE SOLD, FREEHOLD, Suitable for a Bee-Farm or a Poultry Run, an eligible well-built Dwelling-house, stables, lofts over coach-house, garden, orchard, and large plot of land, the whole comprising about seven acres. The house abuts on the Hazlemere road, about four miles from Farnham in Surrey; and contains five bed-rooms, parlour, large drawing-room with cellar under, kitchen, scullery, and bakehouse, out-houses, &c. For particulars, inquire at the office of the *British Bee Journal*, Hanwell, W.

THE

British Bee Journal,

AND BEE-KEEPER'S ADVISER.

[No. 35. Vol. III.] MARCH, 1876. [Published Monthly.]

Editorial, Notices, &c.

MARCH.

March! what a word to burst suddenly upon the ears! We well remember, in our bygone days of volunteering, receiving the caution, oracularly delivered by a smart sergeant of the Guards, 'At the last sound o' the word you will all step off together, touching to the right, and keeping time as nearly as possible with the drum.' 'Mar-r-rch!' and off we went, as a company 'left in front,' with the admonition oft repeated, 'Keep the touch;' 'by the right;' which to the uninitiated we may explain means that in the formation indicated the captain marches on the right of his men, and is responsible for the correctness of the direction in which they are moving; while if the men touch each other 'by the right,' *i.e.*, towards the captain, the whole body move in concert, and achieve the object desired. Now we wish our army of bee-keepers, upon seeing the word 'March!' would all step off together, keeping time with *our* 'drum;' which, though not highly musical, gives no uncertain sound, and may be easily followed, except by those who are deaf to everything that tends to advancement, or are too proud or lazy to learn their facings at recruit drill. Such bee-keepers are always too far to the rear to be of any use to the main body, and collapse at the first skirmish, bringing discredit to the cause, and ruin to themselves, while they scoff and revile at those who, having mastered the alphabet of the science, are able to hold their own, and willing to give to others the benefit of their experiences by the way. These are not likely to be of those who are 'left in front,' and upon them our cautions and our cadence will be wasted; but to those who keep the touch 'by the right,' we are assured the word 'March!' will not fall unheeded; and that every caution will be listened to, and the notes of our big drum accepted as warnings while marching onward in the coming campaign.

March is a trying month for bees and bee-keepers; but with our present knowledge of the subject, there ought to be little difficulty in defending our favourites against its waywardness, and preparing them for the coming season of activity. The hints given during the past two months as to artificial pollen may now be adopted on fine days without reserve. The early spring flowers are in blossom—crocuses, japonica, jasmin, aconite, laurustinus, and others, and bees are already rifling them of their secretions. Many other flowers and shrubs will put on their best during the month; but the meagreness of their supplies will but tantalise the bees, and, as is too often the case, when artificial food is not judiciously administered, lead to robbing and the destruction of the weaker colonies. Stimulative feeding may be at once began through one or two holes in the feeding-plate; but having begun, it must not only not be discontinued, but should very gradually be increased as the strength of the hive develops, until the outdoor supply of food is sufficient for the wants of the apiary, and even then care must be taken that a day or two of cold or rain do not cause famine in the hives, and undo the labour and costs incurred during several past weeks, besides destroying the prospects of the colonies afflicted. Artificial pollen is an inestimable boon, as it supplies a want which can be obtained in no natural way, and produces results in breeding which could not come about after such a pollenless autumn as the last, without its aid.

Many colonies have completely exhausted the scanty score they collected during the cold, wet days of the period named, and to its entire absence may doubtless be attributed the loss of many colonies during the winter which is now passing away. Other stocks will doubtless yet succumb through scarcity of the nitrogenous particles so essential in the economy of the bee nursery, for it must be remembered that pollen is an all-necessary element in the food which forms and repairs the tissue and fibre of the adult bee, as well as the stimulative food for the queen, and the baby food for the infant larvæ.

While we write (Feb. 18th) the sun is shining brightly, and with a warm south wind has brought out our bees by thousands; the crocuses, which the late bitter weather had retarded, have opened wide their petals to the sun's wooing, and the bees, taking advantage

of the hour, have literally torn them to pieces, in their eagerness to rifle them of their coveted treasures. The artificial pollen offered is freely visited, and the bees tumble over head and eyes amongst the frail supports which the shaving chips afford. This gives a hint which we shall 'stick a pin in;' and on the next fine day our pollen-holders will be old straw skeps, and the bees' platform a good handful of stout yellow deal shavings, thrust lightly into each skep; the pollen will then be freely sprinkled upon the shavings, so that it can fall amongst them and form a 'big sunflower,' in which the bees may dive and revel to their hearts' content without being liable to lose their footing, and without the crowding and crushing which take place when a single surface of standing room is offered.

If an old skep before using be first heated before a strong fire, an odour will be given off which will be irresistible to the bees, and they will be sure to visit it. A skep for such purposes will be better than a glass super, as the bees will come to the top to depart, which they might not do in a glass-sided vessel filled with shavings: but it ought to have a glass roof; a large pane, or a light suspended over it would be all that is necessary.

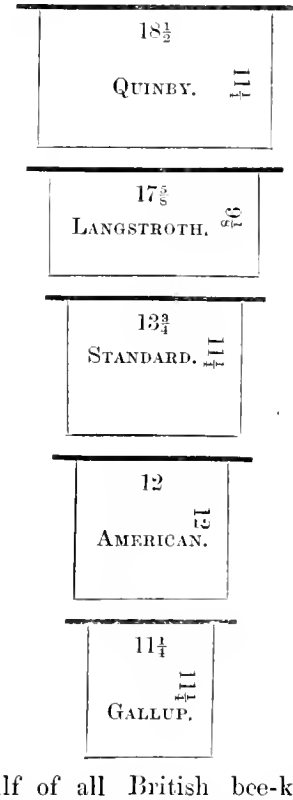
If a decoy is considered necessary, take a cake of old comb, the older the better, and set it on fire, to the windward of the bees, and when partly burned stifle the flame, and let its smoke be borne towards the hives; then put it into the old skep and fill up with shavings, and sprinkle with pea-flour, as before directed. Be sure the flour is fresh, and the weather fine; and if the bees do not come in crowds to visit it, they will be very different in their instincts to any we have ever played the big drum to.

Since writing the above we have had several opportunities of trying the shavings in the 'big sunflower,' and find the plan answers better than any other we have ever tried. To-day (Feb. 26) the skeps are *alive* with bees; indeed, so many have gone down amongst the shavings in search of the pollen, the buzz of their wings has blown off the top, that there is no danger of chill, and we have every satisfaction that the method is as perfect as anything not natural can be.

THE STANDARD FRAME.

Our proposition to name a standard size for frames, while it has elicited considerable argument, appears to be too far from solution to be of any service for the present season except in so far as it may turn the attention of bee-keepers to the disadvantages of the present state of the hive trade, and induce a desire that at least there should be one kind of frame which could be relied on to fit every hive after which it took its name. We have no frame to foist on the public, and, to avoid a suspicion of such intent, have avoided the discussions at the last two meetings of the Committee of the British Bee-keepers' Association, hoping the question would be settled in our absence; but as so desirable a consummation has not been achieved, and the season is advancing, we hope during the summer results from various frames will be watched and carefully reported, and that at least before the next Autumnal Show the Committee will have such evidence before them as will warrant them in coming to a decision on the subject.

In the hope that it may help to solve the difficulty, we here give the dimensions of the principal frames in use in the best hives in America, which we have copied from *Gleanings in Bee Culture*.

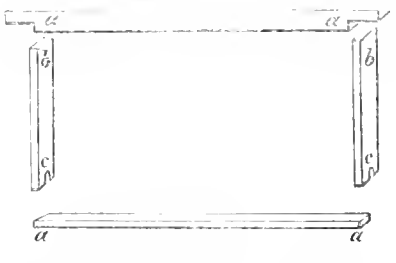


In behalf of all British bee-keepers, we will thank all hive-makers, both British and foreign, if they will advertise themselves, and enlighten our readers by sending us the exact dimensions of the frames used in every hive extant. There is little doubt but that every hive-maker thinks the dimensions of his frames are the best; if it were not so there would be little difficulty or 'hardship' (a word often quoted) in coming to a satisfactory settlement of the question; and when we see so many *best hives*, with only a difference of a fraction of an

inch either way in their dimensions, we think the inventors might 'put their horses together,' and, by a little effort, draw truth from the bottom of the well in which she is said to repose, and embody her in a standard frame instead. We shall doubtless be told to 'let *well* alone;' and so we would if we could elicit the truth by any other means; so we hope to be spared the ill-used platitude. The figures above given are outside dimensions, not taking into account the projecting ends of the top bars; and we hope hive-makers favouring us with the size and shape of their frames will measure them in the same way, that the dimensions may be the more easily compared and understood.

FRAMES WITHOUT HIVES.

An old and esteemed correspondent a short time since suggested that a great want would be met, and much of the objection to frame-hives obviated, if cottage bee-keepers could purchase frames without being obliged to incur the cost and expensive carriage of hives. As he very truly suggested, a cottager might knock a box together, but could not make the frames with sufficient accuracy; and at the first blush we did not see a way out of the difficulty of sending frames without hives or boxes to pack them in; but, desiring to supply the want, we have arranged for the manufacture of frames in pieces, which a boy of ten years old might be trusted to 'knock together' with precision.



The top bar is, as will be observed, shouldered at *a a*, so that no possible mistake can be made as to the distances that *b b* shall be from each other; *b b*, as also will be seen, are notched at their bottom end to receive the slight bottom rail, *d d*, which, being of correct length, is easily fixed in its place by a single brad at either end, and the frame *must* be perfect, as every part is cut by machinery, and must fit. All that is necessary to enable a novice or an amateur to rig a box and convert it into a hive is, to send to the hive-maker he intends to patronize the correct internal dimensions of such box, and the thickness of all its sides; when he ought to be furnished with frames to fit, and with extra strips to nail on to the sides of the box to make it a complete body hive. Such frames (in pieces) ought to be furnished, per set of ten of, say, Woodbury size, including nails, and the necessary additional side and back and front pieces, for about 2*s.* altogether.

THE PROPOSED BEE GUILD.

In the first number of the *British Bee Journal*, 'H. W. T.' forwarded a number of well-considered suggestions for the establishment and governance of a Bee Guild, and by a more recent communication calls attention to clause D, under the fourth proposal for a self-supporting scheme of prizes at exhibitions, which runs as follows:—

'D. That a fixed sum out of every subscription should by regulation be devoted to the special object of prizes, so that the number and the towns and places where they are offered might be multiplied in proportion to the number of subscribers, being members of the Guild,' and of which he says:—'Ten shillings allotted out of each guinea subscription of 250 members would yield prizes as under—exclusive of expenses which ought at least to be covered by the *special* donations to the Prize Fund as now given. I venture to believe that by carefully carrying out rules A and E under 4th proposal, *Bee Journal*, Vol. I., the number of members and the places at which the Show took place would soon be doubled.

	£	*s.*	*d.*		£	*s.*	*d.*
A.*—1 Prize of	5	0	0	amounting to	5	0	0
„ 1 „	2	10	0	„	2	10	0
„ 5 Prizes of	1	0	0	„	5	0	0
„ 5 „	0	10	0	„	2	10	0
Sum total ..	..	..	..	..	£15	0	0
							6
6 of the above prizes in 6 different towns in England ..	..	..	..	..	£90	0	0
	£	*s.*	*d.*				
B.†—1 Prize of	10	0	0	amounting to	10	0	0
„ 1 „	5	0	0	„	5	0	0
„ 2 Prizes of	2	10	0	„	5	0	0
„ 10 „	1	0	0	„	10	0	0
„ 10 „	0	10	0	„	5	0	0
Sum total of Prizes in Provinces and Grand Show ..	..	..	..	..	£125	0	0

Our esteemed correspondent deprecates the multiplication of centres, and is in favour of one head centre only, all Associations being branches. It is curious that the British Bee-keepers' Association has no provision for engrafting branches, while the new Dundee Association (East of Scotland) *has* made that provision by Rule 5, which is highly commendable. We hope the subject will receive the attention it deserves.

* Such Prizes as might be given at Shows in the Provinces.

† Such as might be given in London, or perhaps better if changing the Show-stead yearly after the manner of the Royal Agricultural Show.

BEE KEEPING.

PRIZE ESSAY. BY MRS. E. S. TUPPER.

(*Continued from p.* 189.)

SIZE AND SHAPE OF HIVE.—There is much difference of opinion among bee-keepers on these points; and this arises, I think, from different ways in which bees are wintered. About 2000 cubic inches inside is, by exact computation, as much as can be filled by a queen with brood, and allow room for bee-bread and honey for present use. In the fall, as the brood hatches, the empty comb is filled with honey, and this size also admits of room for sufficient winter stores in any season. I once thought that much less than this would winter a colony; but one season, when we had an early frost succeeded by a late spring, and my bees gathered no honey for eight months, I am sure that the size of my hives alone saved many colonies, as they had not a pound to spare in May.

A little too much is no disadvantage, for the more they have on hand in the spring the earlier and faster do they rear young bees. The form of the hive is more a subject at issue than the size. I have used both shallow and deep frames, and am convinced that the latter are preferable and would now make all frames as near fourteen inches deep by twelve inches wide, as possible; but when this shape is used, a bar across to support the comb *while new* is very necessary.

Bees naturally cluster *below* their stores, and the heat of the hive then ascends where the honey is, and it is free from frost when the bees go up to get it. In the shallow form, they are compelled to cluster at the sides of the hive, and then, in severe weather, the honey is always cold. I have seen whole colonies die in these hives, leaving an abundance of honey. They simply could not get it without freezing. In the instances of this kind which have come under my notice, too much draught had been allowed in the hive, by having the entrance open below and the holes open on the top. To winter safely out-of-doors in any hive, the entrance should be closed so as to admit of the passage of only one bee at a time, and the *cap* should be filled with straw or corncobs to absorb all moisture, and but one hole be left open. Winter passages, as they are called, should be made. These are holes an inch in diameter, two or three inches from the top, made in each comb. Through these the bees can pass without being obliged to go over and under the frosty combs, to reach their stores. I have found little trouble in making bees build straight combs. I may say I have had none, for since the first season I have had no crooked combs. The triangular guides regulate them usually, but if straight worked comb can be obtained and pieces fastened in a few frames of each hive, it will aid them. After one has a few hives filled with straight comb, so that one frame can be given to each new colony, there will be no further trouble if pains be taken. There will be uneven places, or pieces of comb made thick; these should be cut down and regulated as soon as perceived, using a knife dipped in hot water for that purpose. It must be borne in mind that it is not enough to have the combs so straight that they can be taken with care out of *their own* hive and replaced there; to reap the full advantage of the moveable combs, every one must be straight enough to fit in any place in any hive. For this reason also, whatever form of moveable comb is used, they should all be alike; every frame should fit every hive. One who has never tried it cannot imagine the trouble connected with the management of fifty or one hundred hives of different sizes and forms.

[This shows the necessity for a standard frame.—Ed. *British Bee Journal.*]

The matter of size, shape, and model, should be decided with due care, and after bees are put into some of them no changes should be made, even if they seem to be for the better.

No one should attempt to make a hive without a model, unless he has had sufficient experience in bee-keeping to enable him to know just what he wants. In every case they should be well made. The first dozen moveable comb hives which I used I came near discarding, simply, as I now know, because they were so badly made, of unseasoned lumber, that no part fitted as it should.

WINTERING BEES.—Bees are natives of warm climates and their instincts are given them for their protection there. When kept where the winters are severe, or where they are variable with periods of extreme cold, they should be protected in some way. Bees cluster compactly together in winter, and thus maintain their proper temperature. It requires numbers to do this—a small cluster cannot keep up the requisite heat for safety, they therefore freeze. If a thermometer be thrust into the centre of a colony of bees of a proper size, on the coldest day of winter, the mercury will rise to summer heat. The bees are constantly changing, those in the centre moving outwards and the others taking their places. If a bee, in a cold day, gets away from the cluster it is chilled and cannot return. In the coldest weather they remain in a semi-torpid state, and use but little honey. If a swarm is large enough, it cannot perish from cold, but many starve with plenty of honey in the hive, if it is located where they cannot reach it.

I consider the requisites to successful wintering in the open air to be, abundant stores, with winter passages through the combs, a large colony of bees, and upward ventilation secured without a draught of cold air passing through the hive.

Under any circumstances it has been proved that bees consume much less honey when protected in winter. A hive weighing 60 lbs. in the fall of 1863, wintered out-of-doors, weighed only 15 lbs. the 1st of April, while twenty kept in the cellar the same three months lost on an average only 5 lbs. each. Again, six hives wintered out-of-doors lost an average of $29\frac{1}{2}$ lbs. each in three months, while twenty in the cellar, the same length of time, lost an average of only $5\frac{3}{4}$ lbs. Figures like these show clearly that it pays to protect bees in winter.

The time of the year when bees consume the most honey is in the spring months, while raising brood fast. The more honey they have on hand in March and April, the faster they will rear young bees, and the more workers will be ready to gather the harvest from fruit-blossoms. The bee-keeper who leaves his

bees only what honey they can consume, being satisfied if they barely 'live' through the winter, is as foolish as the farmer who allows the team on which he depends for a summer's work to be poor in the spring and short of feed. To do a season's work in good shape, a colony should have plenty of old honey on hand until swarming time. To secure this end, leave from thirty to fifty pounds in each hive in the fall, and then protect them in some way.

I have wintered mine very successfully for six winters, in a dry and moderately warm cellar, where the thermometer usually is about 30° above the freezing point. Here they are perfectly quiet, not a sound comes from them; they seem to remain torpid.. I try not to keep them there over three months, but the want of a proper day in which to put them out has obliged me *twice* to keep them in four months, and no bad results followed. Where many hives are kept, the honey saved in one winter will pay the expense of a house to keep them in, if no good cellar is at hand. Such a house should be dark and tight, and the hives placed on shelves one above another.

A warm, still day should be selected in which to put them out again in spring. Some are very careful to place them just where they stood before, but this is not important. When leaving the hive for their first flight every bee marks its location, and if they do remember, as some assert, the old spot, they wisely prefer the new place.

[Experience in wintering the past cold winter (1871 and 1872) in *some cases*, and localities, has been in favour of leaving bees on their summer stands, either protecting with chaff or a piece of blanket. I mention this for the benefit of those who have no suitable cellar.]

Feeding Bees.—The best substitute for honey that I have ever found in feeding bees is sugar-candy. The sugar should be mixed with water and boiled until it strings, and then cooled in thin cakes. The bees take no more of this than is necessary to sustain life, yet will never starve while they have it. I have tried feeding bees to induce them to rear drones early, and to stimulate them to swarm early, but with no satisfactory results. When I had few colonies, I have fed weak ones to save them; but find it poor economy, under any circumstances, to keep a stand of bees, that require feeding—far better to unite all the weak with the strong ones.

In some sections of the country it is a great help to bees to feed them with rye-meal before the first pollen-yielding flowers come. Where I live there is generally found a great deficiency of bee-bread in the majority of hives in the spring, and here the advantage of rye-meal feeding can hardly be over-estimated. As soon as the bees fly freely in spring, put the meal in shallow boxes or troughs a rod or two from the apiary, and attract the bees to them by pieces of empty comb laid near them. They soon learn the way to it and take it eagerly until flowers come, when it will be left untouched. I have had 114lbs. of meal carried away in one day. I have the rye ground and not bolted. Wheat-flour will be taken by them, but not as readily. Meal-fed bees will send out larger and earlier swarms than others, because the abundance of bee-bread encourages the rearing of brood.

Artificial Swarming.—It is no longer a matter of doubt that the natural swarming of bees can be prevented entirely, and yet such an increase secured as may be desired by artificial means. Some bee-keepers still depend on natural swarming, but my experience teaches me that the only sure way to keep bees with a certainty of regular profit is to take the matter into one's own hands and secure a moderate yearly increase, and at the same time, more or less surplus honey, according to the season.

All admit that early swarms are the most profitable ones. How it may be in other sections of the country I cannot say, but in Iowa bees prepare to swarm every year by the latter part of May. At that season I find in every strong hive partly finished queen-cells and young drones; yet not one year in ten do we have more than an occasional natural swarm at that season. The reason, I think, is this. Near the last of May we have almost every year a few cold days, and these cause the bees to destroy their queen-cells and to cease preparations for swarming. When it is again warm some colonies prepare anew, and then throw off late swarms, while others make no further attempt that season. For the last four years I have made all swarms the last week in May or first of June, and my new hives fill the colonies in many cases before my neighbours' bees swarm naturally. The two or three weeks thus saved at the right time are of the utmost importance. Natural swarming has other disadvantages besides being late. The watching for their motions involves a great expense of time and anxiety where many hives are kept. Every year, too, many natural swarms go to the woods in spite of all care, while an artificial swarm, properly made, never does. Some colonies will refuse to swarm at all, and others will swarm until the parent hive is worthless.

It is not difficult to make swarms in the common hive, but with moveable combs it is less trouble to make an artificial swarm than to hive a natural one.

The danger is that one just commencing to use these hives is apt to overdo the matter. It is so hard to convince any one without *experience* that he is not growing rich in proportion as his colonies increase in number. If moveable frames are not to do the person using them more harm than good, a thorough acquaintance with the internal economy of the bee-hive is necessary. This is precisely what beginners cannot acquire at once, and yet they are often unconscious of their ignorance. In this, as in everything else, the more one learns, the more he feels his deficiencies. I have usually found that bee-keepers venture less the second year of their experience than the first. I advise all who commence with the moveable comb hives to be contented with a very moderate rate of increase until they have experience to aid them. In this matter, truly, 'He that hasteth to be rich shall fall into a snare.'

In the early days of my bee-keeping I reasoned thus: Since the queen is the only one that lays eggs, the more queens I have by the 1st of June the faster my bees are increasing; for certainly two queens can multiply bees faster than one. I therefore aimed to have as many as possible, early. I now see the matter in a very different light; for while it is true

that two queens *can* lay more eggs than one, it is not certain that they *will*. On the contrary, I find invariably that the increase of brood is in proportion to the strength of the colony. If a queen in a weak colony should lay many eggs, they could not be reared when hatched, for want of honey and nurses. If many eggs are laid in such hives, they are destroyed, some say eaten, by the workers. The queens seem to have the power of increasing or decreasing their laying at will. If a queen be taken from a small colony and placed with a larger and more populous one, she soon increases in size and lays freely.

Examine a weak hive, poor in stores in the spring, and you will find but few cells of brood, while a strong one in the same apiary and under the same circumstances of season and weather, will have sheets of comb filled with it in all stages. Exchange the queens in these two colonies, and one will increase and the other decrease her laying. If this fact is borne in mind, it will be understood why one strong colony will raise more brood than several weak ones, and that it is more profitable, especially in spring, to have many bees in one hive than to divide their strength, as is frequently done. Under no circumstances is there either pleasure or profit in weak colonies. The more of them a man has, the less he will like bee-keeping.

One plain rule should be borne in mind in artificial swarming: 'Never cripple the strength of the colony where the queen is to remain.' As soon as you do this her laying diminishes. If she is driven from the hive with the new swarm, have the largest part of the bees with her in the new hive. If she is left in the old hive, leave abundant stores and young hatching bees with her, and she will be stimulated to increase her laying to replace the bees taken. It is wonderful how many bees, eggs, and brood, can be taken from one queen in a single season, if she is left in a strong hive well provisioned.

Instead of dividing hives, as some do in artificial swarming, I now prefer to take brood and bees at different intervals from hives, as they can spare them, and with these build up new colonies. For instance, you have six swarms in moveable-comb hives. No. 1 you will not touch, but from the remaining five you take in succession two frames, each from near the centre of the hive, placing empty frames in their stead. Shake the bees off the frames being careful that you take no queen on them.

Place the ten frames thus obtained in a new hive, then remove No. 1 to a new place, a rod or even more away, and set the hive containing the frames in the place where that stood. This operation should be performed at a time of day when many bees are in the fields, and these as they return, will crowd into the new made colony and labour in it as well as in their own. The colony having no queen will proceed to raise one, as they will find plenty of brood for the purpose. If, when just made, a young queen can be given them, raised in a small hive, you have a safe, sure way of increase. The hive from which the frames of brood are taken will not be crippled by it, but, in many cases, will be actually the better for it.

This operation can be performed again in two weeks if desired. The hive which you remove will not lose as many bees as if it had swarmed, but will soon be as populous as ever, and usually will have no inclination to swarm that season.

Two things are to be avoided in making new colonies. One is, never to leave many bees in a hive which is queenless, and raising a queen. If there are too many bees in a hive which has no queen they store honey in the combs where brood should be, and after the new queen is ready to deposit eggs she is driven to the outer combs for empty cells, and her brood cannot be as well cared for. I have seen many hives suffering from this cause. Again, never leave a queenless colony large enough to build new comb, as all the comb they build until they have a queen will be, invariably, drone-comb.

Many ways of making new colonies without disturbing the queen or diminishing her laying will suggest themselves as one becomes familiar with the business. If care be taken never to weaken colonies containing queens, and if the young queens are reared for the new swarm in small hives, the number of colonies can be increased fourfold more safely than they can be doubled in natural swarming.

Whichever way you practise, *do all of it early*. Better far to leave the bees where they are than to make a swarm late in the season.

(To be continued.)

REVIEW.

The Bee Preserver. Translated from the French of J. de Gelieu, by Miss Stirling Graham, of Duntrune. (Edinburgh: Edmonston and Douglas.)—This nicely-written work does not profess a knowledge of modern apiculture, having been first translated in 1829, since when the venerable translatress has been 'scarcely able to add anything to what he [M. de Gelieu] made so plain and simple.'

It *is* a plain, simple, and genuine effort to promote the humane culture of bees, by the method the author and translatress both found better than any other in their day, and there is no trespassing on ground which is not their own. It is not up to the present mark, but its publication is a healthy sign of the revival in bee-culture which we hail with pleasure. To beginners we do not know of a better shilling's worth, as, for once in the way, there is no attempt to vaunt any hive or advertise any individual; but the author's experience during many years is given from a heart brimming with kindness towards his pets—a feeling evidently largely shared by his highly-talented translatress.

BRITISH BEE-KEEPERS' ASSOCIATION.

A Committee meeting of the above Association was held at 15 Beaufort Buildings, Strand, on Friday, Jan. 28, 1876. W. O. Glennie, Esq., was voted to the chair. Present—Messrs. Edwards, Neighbour, Hunter, Jackson, Walker, Henderson, and the Hon. Secretary. Letters on the Standard Frame were read from Messrs. Jenner-Fust, Rusbridge, and Coleman. The discussion thereon was deferred. A letter was read from Mr. Taylor, explaining the non-delivery of the medals. The Hon. Secretary was instructed to write to Mr. Taylor, urging their completion. A letter was read from Mr. Carr respecting the British Bee-keepers' Association, and the Hon. Secretary's rejoinder thereunto.

The new Circular on the purposes of the Association was read by the Hon. Secretary, and, with a few corrections, adopted. A discussion arose as to the advisableness of the purchase by the Association of diagrams suitable for lectures, and also of screens and other apparatus neces-

sary for the exhibition of bee-manipulating operations in public. Some specimens of honey wine were exhibited.

Another Committee meeting was held at the same place on Feb. 10, 1876. Mr. T. W. Cowan was voted to the chair, Present—Messrs. Edwards, Atlee, Hunter, and Henderson. The discussion on the Standard Bar-frame was adjourned until the next meeting.

The Secretary was again requested to write to Messrs. Taylor, the medallists, asking them to fix an early day for the delivery of the medal, as ample time had elapsed for their completion. The Secretary was empowered to obtain estimates for the printing of 16,000 circulars, and to solicit advertisements for the same.

The balance-sheet for the year 1875 was ordered to be prepared.

The following resolution was proposed by Mr. Edwards :—'That for the future the day of the meeting of the Bee Association be on the second Tuesday in the month, at 5 p.m. to half-past 6, after which hour a conversazione be formed, at which every member of the Association shall be admitted to take part in the converse, and that members be allowed to put any number of practical questions on bee-culture for information, and that the subject for converse be upon "Artificial Pollen: its advantages, if any." That Mr. C. N. Abbott be requested to be kind enough to state the time and subject of the future meetings, for the benefit of the members generally and the readers of the *Bee Journal* in particular.'

EAST OF SCOTLAND BEE-KEEPERS' SOCIETY.

This Society was established in January 1876, by a number of gentlemen interested in and practically acquainted with Bee-keeping, with a view to its extension and improvement on humane and profitable methods. While seeking to foster a love of the science as a source of pleasure and profit among all classes, it seeks specially to benefit the rural and suburban cottager and artizan.

Patrons.—The Right Rev. the Bishop of Brechin; the Right Hon. the Earl of Airlie; Sir John Ogilvie, Bart., of Baldovan House: Admiral Maitland Douglas, of Scotscraig; David Small, Esq., of Gray House.

Patroness.—Miss Graham, of Duntrune.

Committee.—President: Mr. Henry Lorimer, Coldside, Dundee. Vice-Presidents: Mr. John Stewart, Letham Mill, Arbroath; Wm. Hay, Esq., Town Clerk of Dundee. Secretary and Treasurer: Mr. William Raitt, Liff, by Dundee. Messrs. James D. Ker, Douglas Bleachfield; James Alexander, Gardener, Morgan Hospital; James Gled, 3 Fishers' Acre, Arbroath; James Lorimer, West Port, Dundee; Robert Steele, Fowlis Easter; David Brand, East Newport; and Robert Mathers, Baker, Victoria Road, Dundee.

The general meetings of the Society will afford an excellent opportunity for the exchange of useful information among the members; papers will be read, and discussions held on the natural history and proper management of the hive-bee; the advice of skilled bee-keepers will be readily given to inquirers; and objects of interest and useful appliances will be shown.

Local meetings will be encouraged in country districts, at which members of the committee will deliver addresses and afford information; and parties willing to arrange for such gatherings are requested to apply to the secretary for assistance.

Public exhibitions will be held, at which prizes will be awarded for the most successful results, and most useful appliances.

Bee-keepers will be put in the way of obtaining on reasonable terms the best hives and other necessaries, of improving stock by the introduction of the Ligurian bee, and of disposing of surplus honey, swarms, &c.

The Society will specially endeavour, by the example and advice of its skilled members, to instruct cottagers and others how to obtain honey in the purest form without the usual wasteful and cruel practice of killing the bees that gathered it. As an example of the success of this method, it is said, on the best authority, that an English gentleman in 1874 obtained no less than 907 lbs. of pure virgin honey from twelve hives of bees, without either destroying them or robbing them of their needful winter's stores.

The Society's first annual exhibition will be held in connexion with the Great International Fruit and Flower Show, at Dundee, in September next. A schedule of prizes will shortly be issued, and may be obtained from the secretary on enclosing a postage stamp.

Attention is respectfully directed to the annexed copy of the Society's rules, and the co-operation of all classes, particularly of the clergy and country gentlemen, is earnestly invited.

The secretary and members of committee will be happy to furnish membership cards to all applicants on receiving the annual subscription of 2*s.* 6*d.*, and to receive donations towards the prize fund of 50*l.*, which is being raised. By order of the Committee.—William Raitt, *Secretary and Treasurer.*

RULES.

1. The Society shall be called the East of Scotland Bee-keepers' Society.

2. The objects of the Society shall be to encourage the pursuit of bee-culture according to the most humane, scientific, and profitable methods, by diffusing information among its members, by means of general meetings, local meetings as often as practicable, and public exhibitions of bee produce and appliances; to secure advantages for its members in the purchase of hives and other furniture, and to assist in the disposal of surplus honey.

3. The business of the Society shall be managed by a committee, consisting of a president, two vice-presidents, secretary, treasurer, delegates from branch societies, and seven ordinary members, three of whom shall retire annually, but shall be eligible for re-election.

4. The subscription, constituting membership, shall be 2*s.* 6*d.* annually, payable on 1st May.

5. Local societies annually contributing to this society the sum of 10*s.*, with 6*d.* additional for each member above twenty, shall be considered branches of this society, and shall be each entitled to elect one member of the committee; their members shall have all the privileges of members of this society, except that of voting at general meetings.

6. General meetings for business, readings, and discussions, shall be held in the months of January, May, and September. Special meetings may be called at any time by the president for the transaction of business. Office-bearers shall be elected at the January meeting.—William Raitt, *Secretary, Liff, by Dundee.*

ALGERIA.

A general exhibition of agricultural and horticultural produce will be held at Algiers from the 15th April to the 1st May next. Hives and other apicultural implements are to be admitted.

Swarms deserting Brood.—The insertion of brood-comb alone is not always a prevention of desertion, especially if the brood is nearly mature. Select a comb containing unsealed brood; add another containing honey and pollen; take care that the swarm is supplied with water, and it will not be at all likely to desert its hive.—Wagner.

Correspondence.

*** These columns are open to Subscribers, so that their queries, replies, correspondence, and experiences, may be* fully *and* faithfully *recorded; and for the discussion of all theories and systems in Bee-culture, and of the relative merits of all hives and appurtenances, that the truth regarding them may be ascertained. The Editor, therefore, must not be expected to coincide with all the views expressed by the various writers. All Correspondence is addressed to the Editor.*

THE STANDARD FRAME.

The subject of a standard size for bar-frames is one of extreme importance, and one which will require care in handling, for whilst, on the one hand, if too much authority is attempted to be shown, it is certain to be resisted; on the other hand, unless some authority is shown, the suggestion, for such it must really be, will not be respected.

That interchangeability in bar-frames for hives would be very desirable, every one must admit, and many practical examples of its utility suggest themselves to the apiarian.

It need not follow that the hives themselves must be of uniform size. The hive which for one district or season may be desired to be of smaller dimensions can easily be enlarged in length, so as to admit of more bars to make it suitable for more favourable honey-gathering districts or seasons; or it may be enlarged or diminished to suit the fertility of the queen at pleasure. The box only would have to be kept of different sizes, and the bars removed or changed as necessity occurred.

It is not, however, to be supposed that all bee-keepers will at once adopt the size of bar-frame which may be recommended; but if the British Bee-keepers' Association were to issue a circular to their members, inclosing a printed form to be filled up and returned to the secretary, in which each member might make his suggestion as to the size of the frame, an expression of opinion would be obtained which would go a long way to settle the question; at all events, I do not doubt that after such a step had been taken, the size recommended would, in a great many instances, be adopted; and it would soon be proved whether the recommended size was a useful one.

The new circular, which is supposed to be in preparation, will be a very good opportunity of enclosing the inquiry paper without giving the secretary much extra trouble; and whether such inquiry paper should be enclosed to every person to whom the circular is sent, or only in those addressed to members of the Association, must be left to the wisdom of the Committee to determine.

The subject is attracting the attention of bee-masters, and I have been pressed by several with whom I am in correspondence upon apicultural management to state my opinion individually as to the best practical size, and I incline to prefer fourteen by ten inches as a very good size; but I am rather diffident in so doing as I have not had much practical experience with the moveable bar-frame: still I have given much anxious consideration to the matter since the last Crystal Palace Show, and I should be very glad to take part in any personal discussion, if any meeting of bee-keepers could be arranged similar to the Conversazione, which was held last year at the Linnean Society's Rooms, where the discussion of such a subject would have relieved the monotony of the meeting.—J. G. Desborough, 12 *St. Peter's Hill, Stamford.*

ARTIFICIAL POLLEN.

When I first read in the *Journal* of artificial pollen I wondered what would be tried next. I determined to try the first chance I had; and as I have a large quantity of aconite in full bloom, Jan. 29th, 31st, and Feb. 2nd being fine, and a few of the bees were foraging, I first tried with the fine wheaten flour, and to my great surprise they took it freely, and the few attracted others till the bunches were covered with bees, and I went to the hive and saw them loaded. I had no pea-flour, or I should have used that, as being stated to be the best. Am I right in using the wheaten flour? I tried it yesterday in the crocus, and they were more eager than before. In the absence of the flowers how am I to place it? I tried some on a dish with a few shavings, but they would not take it. In the early time of my bee-keeping I took one of the best straw supers I ever had from a skep that I inverted, and when I took the super I turned the skep into its proper position, and the bees lived through the winter without feeding. As I knew nothing of feeding them, and the reason of trying that plan was owing to a visit of a friend of mine from Stamford, who was shown some gentleman's bees, no doubt it was Mr. Desborough: I was recommended to use glass supers, so that I have not tried the above plan since.—H. Tuck, *Upwell Isle.*

MELLILOT CLOVER.

I found a specimen of a variety of this plant growing amongst a lot of rubbish in an out-of-the-way place about midsummer last year. It was then about four feet high, and overtopped the nettles, &c. amongst which it was growing, and had a good sprinkling of yellow blossoms on it, to which the bees were very attentive. I was just in time to save it from the scythe of a person engaged in cutting down the rubbish, and afterwards secured it to a strong stake, and in July it withstood the force of a rapid torrent four feet deep, and looked none the worse for it after the flood was gone down. I can strongly recommend the plant to all bee-keepers who have convenience to grow it. It keeps a blossom all through the summer, and ripens the seed in autumn. The foliage, when dried, is very fragrant, and I should think it possible it may become a profitable plant to grow for provender.—P., *Warwick.*

BEE FLOWERS, PLANTS, AND TREES.

'A Novice,' in the last month's *Journal*, inquires for a list of bee plants; and as there are many who would perhaps like the same, and at the same time

like to know about what quantity would be sufficient for their use, I herewith send a list, with the number of seeds of each sort that it takes in round numbers to make up an ounce weight. There is another point I may mention in sending this list, that is, that those intending to sow largely should first sow a small bed of each sort on the ordinary ground intended to be used. By this means a thorough knowledge of the best adapted plant is obtained, as the same plant on one soil can be a complete source of honey, whereas on another not a bee visits it.

Bee Plants.

Botanical Name.	No. of Seeds.	English Name.
1. Borago officinalis ...	1,800	Borage
2. Phacelia tanacetifolia ...	15,000	P. t.
3. „ congesta ...	16,000	P. c.
4. Reseda odorata ...	42,000	Mignonette
5. „ luteola ...	79,000	Dyer's weed
6. Lavendula spica ...	10,000	Lavender
7. Arabis cærulea ...	80,000	Alpine rock cress
8. „ Alpina ...	77,000	
9. Dracocephalum Moldavicum ...	15,000	
10. Centaurea cyanus ...	7,700	Cornflower
11. Althea rosa nigra ...	2,400	Black single hollyhock
12. Melissa officinalis ...	51,000	Balm
13. Gntiernezia gymnospermoides ...	90,000	G. g.
14. Salvia trichostemoides...	17,000	
15. Salvia coccinea nana compacta ...	30,000	
16. Cleome integrifolia ...	3,800	
17. Lophantus anisatus ..	95,000	
18. Asters ...	100,000	
19. Solidago ...	150,000	Goldenrods
20. Cajaphora lateritia ...	200,000	
21. Godetia ...	125,000	
22. Cheiranthus cheiri ...	18,000	Wallflower
23. Utoca riscida ...	280,000	
24. Clarkia elegans ...	130,000	
25. Bartonia aurea ...	40,000	
26. Centranthus ...	30,000	
27. Lobelia erinus speciosa	160,000	
28. Verbena hybrida ...	12,000	
29. Cerinthe aspera ...	4,600	
30. Whitlavia grandiflora ...	160,000	
31. Portulacca (single) ..	395,000	
32. Collomia ...	5,800	
33. Papaver ...	400,000	Poppies
34. Brassica napus ...	7,000	Rape
35. Mellilotus alba altissima	1,800	Bokhara clover
36. Hedysarum Onobrychis	1,180	Esparsette
37. Ornithopus sativus ...	8,600	Terradella
38. Medicago sativa ...	11,500	Lucerne
39. Spartium scoparium ...	3,000	
40. „ Junceum ...	2,000	Broom
41. Polygonum Fagopyrum	1,500	Buckwheat
42. Trifolium hybridum ...	44,000	White Swedish clover
43. Sinapis nigra et alba ..	3,600	Mustards
44. „ arvensis ...	4,500	Charlock
45. Tilia Americana ...	210	American linden tree
46. Acer saccharinum ...	168	Sugar maple tree
47. Leriodendron ...	230	Tulip tree
48. Gleditschia triancanthos	88	
49. Ulex europæus ...	4,500	Gorse furze
50. Cynoglossum officinale	960	
51. Hyoscyamus niger ...	39,000	

In addition to the above, the planting of crocuses and *Arabis alpina* close to the hives cannot be too highly recommended; and also, where space and circumstances will allow, the various salixes, or willows, hazel, and birch, will well repay in spring with pollen from their catkins; and a plan to be worth following is the removal of all cabbage or green stalks, and planting them in some spare corner, that they may flower and yield a rich harvest for the trouble.—J. S. Wood, *Nyborg*.

THE CYPRIAN BEE.

The Cyprian bee having engaged a good deal of attention lately in Germany, I prepared, some time ago, a translation from the *Bienenzeitung* of an article by Herr Cori, in which he gives a minute and interesting account of the value and peculiarities of this variety. Unfortunately, during a change of residence, both original and translation have been mislaid. He speaks, however, most highly of their good qualities, and considers them in advance of any other race that he has cultivated. In this opinion he is completely borne out by Count Rudolph Kolowrat of Tabor. It so frequently happens that the last pet receives the highest honours, and we are so apt to believe that that must have especial value which has cost considerable pains to obtain, that a certain amount of caution is advisable in receiving these enthusiastic statements. Herr Cori's opinion, however, is deserving of the highest respect, for both he and the Count have been most perseveringly engaged for many years past in importing various races of bees from their native lands, and making comparative observations on their merits, and this without being biased by the expectation of any commercial gain. The bees got from the neighbourhood of Smyrna (1864) seem to stand next in their estimation. Both the originally imported stocks, and those subsequently raised from them, presented a certain number of black bees; and as after the most painstaking attempts to breed them pure the result remained the same, the conclusion was come to that they were of a mixed race. To give some idea of Count Kolowrat's labours in this direction, I may mention that in June, 1870, he took to the mountains forty small stocks, each furnished with a princess (Asiatic, Dalmatian, Italian, &c.) and about a hundred picked drones, chosen on account of the beauty of their markings. The obtaining of these drones was a work of immense care and trouble, and occupied eight days. Through the isolated condition of the locality, and getting the bees to fly early in the day by artificial means, from eight to nine-tenths of the princesses were impregnated in the desired way. The Smyrnians, however, still remained mixed, and the result was the same in 1871. The Hungarian bee is described as black, and more industrious than the native bee. The Dalmatian is raven-black, with a wasp-shaped body, very hardy and industrious, and remarkably gentle when unirritated. In reference to the tendency of bees to sting, Herr Cori seems to show from the various sorts he has cultivated that the higher the merits of bees generally, the less inclination is there to irascibility; but when once excited they sting more viciously. The Herzogovinian bee is very similar to

the Dalmatian, not, however, quite so black or so wasp-like. The first ring of the body, when carefully observed, has a slight yellowish appearance, which comes out very plainly when the body is kept in spirits. They are said to be as gentle as the Dalmatian, still more industrious, and the queens still more prolific. This bee, crossed with the Cyprian, would give, according to Count Kolowrat, a most useful progeny. I trust Mr. Poole may be successful in his attempt at introducing the Cyprians. Queens and swarms are already advertised in the *German Bee Journal*.—A Country Doctor.

BEE JOURNAL—VENTILATION.

In the *Journal of Horticulture* of January 20 the following reply is apparently given to some correspondent in the part styled 'Our Letter Box:'—'Bee Journal (J. T.).—There is not one published.' Should not this be contradicted?

A good deal of correspondence has taken place upon the subject of ventilation and keeping bees warm in the winter. I have for many years exposed my bees to thorough ventilation, and have never lost a stock, except from starvation by hunger. The hives are Woodbury frame hives, both of wood and straw, and are placed on separate stands in the open garden. Each hive is protected from the web by an outer wooden cover, *i. e.*, a box without top or bottom, of about two inches greater external diameter than the exterior dimensions of the hive, so that the air circulates freely between the hive and cover. A loose, sloping cover fits upon the external box. In November I remove the bung from the central hole in the crown-board, and simply cover it with a piece of perforated zinc to keep in the bees, and allow the entrance to remain wide open as in summer, unless the ground is covered with snow. I find that breeding frequently takes place even in January, in spite of this free ventilation. In the winter of 1860–61, my bees, in a box without any external cover or protection, freely ventilated, stood a temperature close upon zero with perfect impunity. It is damp cold which kills bees. Hives thus treated are perfectly dry and healthy, and the combs generally quite free from mould. My stocks are at present perfectly healthy. Ventilation will be closed towards the middle of this month if the weather be mild.—J. E. Briscoe, *Wolverhampton*, Feb. 1, 1876.

IGNORANCE OR JEALOUSY?

Has a new editor of the 'Bee Chronicle' in the *Journal of Horticulture* been appointed recently, or have you done anything to offend his mightiness? In the issue for Jan. 20th last the following appeared as a reply to a correspondent:—'Bee Journal (J. T.)—There is not one published.' Thinking it rather extraordinary that any writer on bees should now be ignorant of the existence of your *Journal*, I wrote, pointing out the error, and took the trouble to have a copy forwarded; but three weeks have passed away without a word of correction or explanation. If it would not be contrary to the etiquette of the press, I should like to know who has the management of the apicultural department of the *Journal of Horticulture*.—C. Tite.

FEEDING—DESTROYING WASPS' NESTS.

There seems to me a great difficulty in the plan suggested in the *Bee Journal* for February by W. D. Whiston, in inverting the bottle of syrup inside the flowerpot. I have found the following plan a very simple one, and quite efficient:—Place the perforated zinc or vulcanite over the feeding-hole, invert the bottle on it by means of one of your little tin shovels, and then invert over it a flowerpot, and put a piece of tile or slate over the hole in the pot, and no packing is required, and robber-bees and wasps are perfectly excluded. For destroying wasp-nests there is nothing simpler than pouring a dose of gas-tar from an old watering-pot into the hole in the evening when they are all at home, and putting a sod over the entrance. I have found this perfectly effectual even though the tar should not find its way into the nest itself; the smell is enough, and they will be found all dead in the morning, and the gas-tar is a much safer thing to deal with than cyanide of potassium, and I should think much cheaper, though I have never purchased any of the latter.—C. E. F.

THE NEW METHOD OF SUPERING.

In reference to the article in your last Number, 'A New Method of Supering,' I send you a contribution, translated from the German Hanoverian '*Central-blatt*,' No. 9, 1st Sept. 1874. Mr. L. Pellence refers to bee-keeping in Le Gatinais, a province in France, viz.:—

'The masterpiece of bee-keepers in "Gatinais" is to have very strong and populous hives, as early as the honey glut takes place. When the Esparsette (*Onobrychis Sativa*, or *Hydysarum Onobrychis*) blooms, they turn their hives (straw skeps) upside down, so that the crown stands upon the floor-board, the open part uppermost. Upon this open, they place perforated sheet-iron (No. 35), and upon that a second hive, already partly built up, with empty comb.

'The holes of the sheet-iron allow only worker-bees to pass; it is therefore evident that the bees soon fill with extra fine honey, the upper hive, which has already clean new comb in it, so that they have not much hard work to perform. To prevent the queen leaving the lower hive, and to ascend into the upper one, the sheet-iron is left about three inches, projecting outside the entrances of the two hives. All bees returning home from the fields, laden with honey, ascend into the upper hive and go into the entrance of this hive, whilst those that nurse the brood enter the lower entrance, whilst the queen feeling quite comfortable in the midst of her young descendants, does not attempt to escape.

'As the lower hive has been turned bottom up, all the cells have now a downwards inclination in it, viz., reversed, of course, and in these downwards-turned cells, the queen does not deposit any eggs,* so that in

* This statement is incorrect.—Ed.

the shortest time, all the bees are gathering, which increases the weight of honey stored materially.

'When the top hive is filled with honey, which in a good season is possible in about a fortnight's time, it is taken away, and the lower one returned into its original position; the queen has not deposited any eggs during the time above referred to, and this original lower hive has now plenty of empty cells vacant for storing the honey still to be gathered. It is also evident that as the season for turning the hives upside down, falls during the best time of breeding, that the number of bees are very materially reduced, the bee-keepers in "Le Gatinais" therefore generally join up to five swarms to get one good, strong hive, and these collect a rich harvest from the clover, &c. &c.; and the latter out of bloom, they are taken first to the buckwheat fields and afterwards to the moors; but these people are always obliged to buy from their neighbours those bees intended for the sulphur pit, to restock and join to their own in autumn, because their numbers have dwindled down during the months of hard work of collecting when they have ceased to increase.'

Referring to the above, 'Does the queen deposit her eggs in cells with a downward inclination?' I add the opinion of Mr. Toelke and Professor Tseke, both of Hanover, the former says the queens do deposit eggs in them, and the latter thinks the cause why the queen ceases breeding is to be accounted for, because the worker-bees are all more or less busy in honey-gathering, therefore mostly in the uppermost hive, and the nursing bees are so greatly reduced in number; he draws the attention to the opposite, that in a crowded hive the breeding is continued to the lowest cells; yes, into even larger cells, drone cells, and even into the lowest cells of an eke added to the hive, when the brood can be attended to, but that breeding is decreased as soon as the nursing bees turn to honey-gatherers, and the brood in the cells of the lower hive is left with a small number of attending nurses only.—John G. Kirsten, *Hamburg, Feb.* 1876.

NEW METHOD OF SUPERING.

As you have in the *Journal* for this month given us an instance of success attending a complete inversion of the 'order of nature,' I beg to send you a good instance of success attending a half turn of the same wheel in a most unfavourable season. A friend in Queen's County has sent me the accompanying notes regarding a hive of bees in an old fallen tree.—Thos. Buchan Sydserff, *Ruchlaw, Prestonkirk*, Jan. 1876.

Our Tree Beehive.—The old stump was lying prostrate when the bees took possession of it, but there was a hole at each side, somewhere near half-way up it, only the right-hand hole is somewhat round the side, and could not be seen from the real front. The bees worked up the stump from each side, so that when the trunk was set erect the combs were still upright (perpendicular). The stump was brought to the garden in the spring of 1874, and placed in a southern aspect, and covered with a small straw cap (the smallest of a set of three). There were then some six inches without comb at the top of the stump. We tried to plaster up the side-holes, so as to force the bees to work only at the top, but they worked in both places, and generally went in and out at the large side-hole. During the summer of 1874 they filled up to the top of the stump, working the combs rather to a point, and then they filled the little cap, which was removed, yielding about 4½ lbs. I should say. We took no more from them that year. In the summer of 1875 they worked well, first filling the small cap, and then a good-sized hive—altogether some 14 or 15 lbs. I think—but we did not weigh it. When Magrath extracted some combs from the trunk, it was when the second hive was taken away. The combs were yellow, not as white as the new, but not black. There appears to be plenty of honey still in the tree, but we shall feed them a bit.

It is supposed that we lost a swarm from them, but we are very likely to have swarms in 1876, as there is no room for them in the old trunk now.

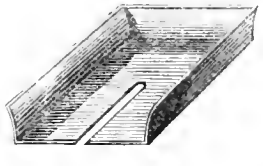
THE NEW SYSTEM OF SUPERING.

Your notion of turning hives upside down to prevent too much honey being stored in them, is rather startling, and, as you say, we must try it before making much noise about it. I venture, however, to suggest that, instead of reversing the whole hive, the central combs only in a bar-frame hive could be reversed, leaving two outer ones on each side in the ordinary position, so that the bees may store honey in them, and thus avoid the danger of being left without food. This could be easily managed by cutting off the projecting part of the top bar in ordinary frames, and tying the frame in its usual position, or reversed, to a separate top bar of the length required. In your frames it would be necessary to have a second frame (inside the first), which could be reversed at pleasure.—H. Jenner Fust, Jun., *Hill, Falfield, Gloucestershire.*

DISTANCE GUIDES.

As promised, I beg to forward you a simple idea for distance guides for frames, if nothing of the kind has appeared before. The accompanying sketch will explain itself. The V notches are cuts in the rabbets at the distance required, with a chisel, a little

narrower than the width of the rabbet; this will prevent the bees stuffing the notches with propolis, as they otherwise would most likely do. The bars should have a French nail driven in at the middle about $\frac{3}{16}$ inch from the end; and to do this rapidly I



have devised the very simple piece of apparatus as shown, preferably made of tinned-iron plate, such as

is used for canisters, there being more spring in it than in zinc. The sides should be slightly curved and bent a little inwards; then, as the frame-bars will vary slightly, you may always be sure of getting it in the centre. The nail is then driven in at the end of the slot, and cut off underneath about $\frac{1}{16}$ or $\frac{1}{8}$ inch from the bar. The advantages of this plan are that any frame may be removed in a lateral direction without disturbing the others, or taking a frame completely out as in frames with distance-racks—and its extreme simplicity. I am now about experimenting on the combs for producing impression plates by the electrotype; and, if successful, will form the subject of another communication.—Wm. Freeman, *Sevenoaks*.

TAKING HONEY FROM SKEPS.

I am much obliged to you for reporting that idea I wrote to you about taking honey from skeps, but I am very sorry that one most important point was missed, that is, of breaking out the combs. You quite misunderstand me in that matter. I do not break them out in the manner you describe; but when I have got out the sticks, I have the mouth of the hive upwards, and gently tap it on one side and then on the other till all the combs are loose at the top; then all the combs lay nicely in the butt, not one comb is broke or spoiled, and no honey is lost, as when you cut them out with knives. If you understand me, I should like you to make it clear in our next number. I will try to be at our meeting next year; but if you have to come to Manchester, or any place near, before that time, I should like to meet you, and explain further, if necessary.—Jas. Wrigley, *Rochdale*, Feb. 2, 1876.

[Our Correspondent will please pardon us for thinking his method of *breaking* out the combs objectionable. From our point of view the cutting process is far preferable, but better still will the storifying plan, mentioned on p. 185, as by its means the upper part of the hive which contains the honey can be removed without interference with the brood nest.—Ed.]

BRITISH BEE-KEEPERS' ASSOCIATION—REPLY TO MR. CARR.

The answer to Mr. Carr's friend's inquiries, I think, will be, that the British Bee-keepers' Association was instituted for the purpose of spreading a knowledge of, improving, and encouraging bee culture, and not for the purpose of conferring individual benefits on its members. The small annual subscription of 5*s*. was intended to be, and has been, devoted to the purposes for which the money was subscribed. No one can know better than Mr. Carr that bee-culture, by the direct and indirect efforts and influence of the Association, has received an enormous impulse—seed sown yet to bear fruit; the ingenuity of practical bee-keepers has been excited, by emulation and reward, to invent and make known improved hives and appliances; literary aspirants have been encouraged to write and publish their thoughts and experiences, which, as time rolls on, and fresh facts are brought to light, will all tend towards perfecting our knowledge of bees and bee-keeping. The business of the Association has been conducted from the commencement with the most scrupulous economy, none of its officers have received any emolument, rent of committee-room has been almost nominal, and the conversazione in the spring, and the exhibition meetings in the autumn, were the means of bringing together many gentlemen, who, as Mr. Carr has said in the *American Bee-keepers' Magazine*, found many friends, and spent some happy days. With regard to the second part of Mr. Carr's letter, I fear that his memory, and that of many members, is somewhat at fault, seeing that last spring was sent to every member the balance-sheet of 1874; that of 1875 now awaits auditing, and will soon follow. And I may conclude by saying that a standing order of the committee is, that the accounts be made up to December 31st in each year.—E. L. Cleaver, Hon. Sec., 1 *Devonshire Terrace, Kensington*.

A HINT TO DISTRICT SECRETARIES.

In order that bee-keeping might make rapid progress in the rural districts, and the local apicultural exhibitions be really successful, it will be well for the secretaries and members of the various County Associations to look up the bee-keepers of their respective districts early in the spring. A few words of advice to one cottager, and a little assistance to another occasionally, will do much to smooth the way from ignorance and gainless apathy to enlightened energy and success. Cottagers should be encouraged to prepare for the shows, and many an apiarian will be able to tell his poorer brethren how the weight of supers might easily be increased, and the quality of the honey improved without any considerable outlay. 'Let us, then, be up and doing.'—C. T.

WATER FOR BEES.

Mr. Langstroth's urgency on the subject of supplying bees with water at the commencement of the breeding season, leads me to fear that our stocks sometimes suffer for want of it. But as far as I can hear no experienced bee-master in this country has ever found it necessary to give his hives water. Under ordinary conditions, as you say, the bees will always find enough for their purposes. But now that the more general use of the quilt is keeping our colonies dry all the winter, it would seem as if the danger of being too dry was impending. The great German bee-writers have declared that bees in want of water in the spring will destroy the larvæ and cease breeding if not supplied; and that five out of six bees in early spring die for want of it. The most serious consequences are traced to 'water-dearth,' and we are desired to supply water from January till spring fully opens. Langstroth himself seems to doubt whether any of his colonies whose honey was not candied, have died from water-dearth; yet he gives evidence to prove that hives having good upward ventilation are in considerable danger of it.

On the other hand, one of our most experienced and successful bee-masters, in writing to me on the

subject, says, 'I have never troubled myself about providing water for my bees. I have endeavoured to tempt them to accept water in shallow pans, temptingly arranged with cut straw, moss, and even salted or sweetened water, but very few would look at it.'

I may observe that I have afforded similar facilities to my bees—minus the sugar and salt—and have had a tank made in my apiary, with floats for the use of the bees; but after having watched it carefully, I could never see a bee make use of it, though I have found one or two drowned bees in it occasionally. The result is, that I doubt the advisability of placing water near the hives, and cannot reconcile the strong opinions of American and German bee-masters with the facts of my observation, and the practice of English bee-masters, yourself among the number.

Mr. George Fox suggests that the humidity of our climate may account for the discrepancy as regards America; but I reply that there is no such difference in humidity between this country and Germany, and the German writers are as imperative as the Americans.

I would hope that some of our members may give us the result of their observation and experience; as it may be that our improvements in the winter management of our bees will necessitate modifications in our practice in this particular.

In most of my hives breeding is now actively in progress; they have been kept very dry all the winter; the weather now keeps the bees indoors, ought they or ought they not to be supplied with water? —F. Gell, *Llysuen Rectory, R.S.O., February* 21.

AN APICULTURAL PUZZLE.

The following sentence was given as a preliminary test at a Spelling-Bee, held at Taunton, Somerset, on Feb. 16th :—'This mellifluous gathering consists not of apiarists inspecting that ceraceous substance, reticulated and decussated at equal distances with interstices between the intersections yclept the honeycomb, but of competitors in the glossological arena encountering sesquipedalian vocables.' This reduced the number of competitors from thirty-four to twenty-eight.

BEE-KEEPING AND THE COMING R.A. SHOW AT BIRMINGHAM.

I am much surprised that no notice has hitherto been taken by our apiarian friends of the Midlands of the Royal Agricultural Show, which will take place in Birmingham on July 19, 20, 21, 22, and 23. It will be a splendid opportunity for a public exhibition of bees and bee-manipulation, as well as of hives and apparatus. Although a mere tyro myself, I should be most happy to co-operate with some other gentlemen for the purpose of getting up a good display; but in my opinion there is now no time to be lost to secure a really good show.

Apiarian science seems to be at a very low ebb in this district; the majority keeping to the old-fashioned skeps, and *burning* the bees in the autumn. One man that I spoke to said that he had kept bees for eight years, and had not got a dozen pounds of honey in that time; and when I spoke to him said that three of his hives were dead then (beginning of December); and when I advised him to feed them, said he did not think that it was worth while, and he did not care about meddling with them.—Brym.

ECHOES FROM THE HIVES.

Easthill, Westbury-on-Tyne, Bristol.—'My bees all safe so far. I have wintered 13 stocks by feeding, from your directions in autumn. My Ligurians are very strong and very well striped.—H. Carpenter.'

Liverpool, Feb. 12, 1876.—'The weather here at present is Christmas-like, which keeps our favourites indoors. My stocks, sheltered by the quilt, are in first-rate condition, not the least sign of damp being visible. The *Bee Journal* is increasingly interesting.'

Copenhagen, Feb. 9, 1876.—'We have had a tolerably hard winter. It set in very early, so that the bees have not had a fair chance of flying out since last October. One day about the end of last month, on a dark cloudy day, with 2° Rr., one of my Ligurian families could stand the confinement no longer, but swarmed out in the cold; they went in again quickly. On the 1st we had a fine day, and two families came out again, Ligurian hybrids (the genuine and hybrid Ligurians are far more restless than the common grey bee, and therefore suffer very much during our long winter). At the present moment the ground is white with snow, and the thermometer is at freezing point, and I expect that for a couple of months longer we must have patience and hope the best. This long northern winter is trying enough for one accustomed to the mild Devonshire climate of England.'

Somerset.—'Having no time to look after my bees, except to take the swarms, they have to take care of themselves, and did this so well that, three years ago, I had between seventy and eighty stocks. I have had no honey since then. There were thirty-three left at the beginning of last spring, and there are, perhaps, about a dozen now alive, with the worst part of the year just coming. With few exceptions *all* the cottagers' bees died during the winter of 1874-75 and the spring of 1875. Of course, care and feeding would have saved many: but I know three cases where every care was taken, and yet with like results. The colony of bees in a church-roof and also in a house-roof are both dead. This, I think, proves the last few years (three) to have been very unfavourable to bee-keeping.'

Waskerley.—'Bees did very badly here last year, but we are situated on a bleak moor, and there is very little for them to get until June, when the white clover flowers, and in August from the heather. I started with 13 hives to winter, 2 of them being composed of drummed bees in the autumn, and I fed them with boiled sugar, according to your valuable *Journal*, but having them on an exposed stand, a strong wind blew them off and broke the combs down, but the rest of them have been very bad of dysentery: I have them all in straw hives. I mean to have some wooden ones this summer, hoping to have a fine season. I would like to see a Bee-Keepers' Association started in Durham county.' —C.T.

Forton, Gosport, 15th Feb. 1876.—'I send you a drone that was expelled from a straw skep yesterday and massacred. Some others were thrown out previously, white honey been drawn from the cells; this was in another hive. Is not this very costly for such idlers? The hives are strong and hearty apparently. I find the Bokhara clover, *Melilotus Leucantha*, is only biennial, but it is first-rate pasture for bees, giving a heap of flowers the second year, and indeed a good deal the first. I hope your apiary is doing well. Thanks to the quilt

and continuous gentle feeding in the autumn, I have not lost a hive, though my neighbours' have all died. I am feeding one or two light ones now.'

Bloxham, Banbury, 15th Feb. 1876.—'I examined my hives (19) and found all right, except one, which was very weak; this was Pettigrew's 18-inch. My four American hives were the best, but I have partially altered their frames at the top so as to adapt them to the quilt, and I housed all my hives. I find any glass in hives very detrimental, as this is a damp climate, and have often found as much as a spoonful of water on the boards, arising from the condensation, especially when there has been much change in the temperature between day and night. Some of my hives are the Berkshire, which certainly engenders more damp. I do not think there are a dozen hives of bees left in this village.'

Herefordshire, 17th Feb.—'I have six of your hives on hand for the model gardens at Hereford. As I told you, I offered ten, but they preferred to begin with six this year. The bees seem all well, except the Ligurians, the spermatheca of whose queen got chilled last year. I saw Daphne pollen going in this afternoon, and want to begin "gentle continuous" feeding at once. We had a very mild winter, but there has been on one or two days a dangerously rapid alteration of the temperature, which was bad; still the quilt keeps my bees dry and comfortable. My difficulty is about *water*, and I think of addressing Mr. Editor on this point in a day or two.'—F. G.

Honey Cott, Weston, Leamington, Feb. 21, 1876.—'All my thirty-four stocks have stood the winter well, and as far as I have ascertained I have only one that is queenless, and I believe they have a fertile worker, as there is brood sealed up in drone-cells, and an effort has been to make a queen by raising cells on the comb where the drone-cells are. Having examined some of my stocks, I find they have three or four frames full of sealed brood, and I have not even fed with barley-sugar till last week since finishing feeding in October. Is any more progress made towards getting a settlement about the size for standard frames? I hear of great losses of stocks in the villages round our neighbourhood, some have lost nearly all, and others more or less.'

Whittingham Hall, Fressingfield.—'I have the despised "quilt" on all hives, except one which has an empty super over feeding-hole, which condenses the moisture to a certain extent, nevertheless, the hive is wet, but the former are all as dry as possible. Bees in Observatory hive have not shown themselves, but I do not yet like to remove their warm packing to satisfy my curiosity. All other hives are flying briskly every mild, sunny day, and am happy to say, appear strong. I did not feed in autumn, as second clover yielded honey abundantly.'—T. F. Cluttten.

Queries and Replies.

Query No. 142.—Confining Bees during Snow.—On two occasions when snow has been upon the ground, I have closed the entrance of my hives with perforated zinc. In the first case they remained so for a week, and when I took away the zinc, I found the entrance absolutely blocked with the quantity of dead bees, which were lodged as tightly into the entrance holes as if you had pressed them into them with your hand. In the second case the hives were closed only for one day, and again I observed the same result, only that the number of dead bees was, of course, less. In this last instance the bees appeared to me to be quite young, and if it were possible at this time of the year, I should say that they had not long been hatched.

I am inclined to think this closing of the hives in snow a bad plan, for I can hardly suppose that so many die each day, and that these were just the ordinary number of the dead which the others were prevented from turning out in the ordinary way. I am inclined to think that stopping up the entrances actually kills the bees. Can this be the case? They seem to have been busy thrusting through the perforations of the zinc, quantities of dust, and what looks like little bits of wax or pollen. Though so many have died in this way, I see no decrease in their number, which is also an odd thing. They have been fed all the winter, and covered up in carpet. We may have more snow, and therefore I shall be glad of an answer.—G. H. W., *Dorset*, Feb. 15, 1876.

Reply to Query No. 142.—Confining bees within their hives, except as a very temporary measure, is radically wrong, and extremely dangerous to the future prosperity of the colony. When snow is on the ground, the bees will not venture forth, unless a strong glare of sunshine light up the hive interior, and this can always be prevented by shading the entrances so that the sun's light shall not enter or be reflected into them.

A number of bees die naturally every day as a matter of course, and at the first opportunity the survivors endeavour to thrust them outside the hive; but, finding themselves shut in by perforated zinc, they rush about in a most excited way, and soon disturb the whole of the bees in the colony; and in their frantic efforts to get out it often happens that they block up their entrance with dead bees, and thus cause the suffocation of the whole colony. Who does not remember the effects produced by a fire panic in a crowded church or theatre? It is much the same with bees: they lose all regard for their fellows, and strive only to get out. A greater evil than the loss of a few bees will be found in the effect of the wear and tear of fibre that will have been sustained during the imprisonment. Every disturbance, every buzz even, consumes directly or indirectly some portion of a bee's vital energy and power, and it is not difficult to imagine the injury which will have been caused by only one week of continuous bustle and excitement. Hives may safely be placed anywhere in the dark (if the locality be dry), but should on no account be made close prisons for the bees. It is quite probable that many of the dead were *infant bees*. The weakest usually 'go to the wall' where there is a crush. If the bees are breeding, as the young bees would signify, a few hundred deaths would soon be recouped. The thrusting out of the dust, and chips of comb and pollen, show how anxiously they keep the hive clear of such material, and point to the folly of closely confining them within the hives.—Ed.

Query No. 143.—I thank you for the information contained in your last communication, and I am now about to trouble you once more.

1. In the February *Journal* you say the time has now come to commence feeding our young bees again. My bees are all covered with carpet and flannel. Will that be hot enough for them when they commence to breed which should soon commence after feeding has begun? Do you put anything, such as oiled silk, between the carpets and the frames to keep in the heat? Would American oil-cloth do, or what do you recommend?

2. With reference to bee-pasturage, I have a nice space of ground near my bees; in it I have (last autumn) planted three or four thousand crocus-roots. What will

be best to follow them—mignonette, phacelia, or melilot clover? How high does phacelia grow, and can the seeds be put in the open ground at this time of year?

3. What are the best *gloves* for bee-operations? I have tried gutta percha, and don't like them; they are too hot.

4. Will syrup, made in September, that has been ever since in a beer-barrel out of doors, be fit for feeding purposes? I made more than I required last autumn. It has been properly *bunged* with a cork.

5. Is yellow broom a good flower for bees?

6. Do you think a saw-cut in the middle of the underpart of top bar of frames would be an inducement for the bees to work straight, and would that saw-cut be a good guide for putting on the line of wax straight? Is a line of wax on under bar as good a guide as a comb?

7. How do you recommend giving the artificial pollen (viz. Symington pea-flour)? I have found a difficulty in getting them to take it.—J. H.

Reply to No. 143.—The advent of the crocuses appears to be the best general date upon which to decide on commencing stimulative feeding, as then, bees are on the alert and have a natural inclination for the breeding which will be sure to follow, except in queenless stocks. Our first crocuses appeared on the 3rd of this month (Feb.), but the return of bitter weather on the 5th damped the ardour with which we were preparing to aid the instinctive impulse of the bees; and although the *time* had arrived, we hesitated in the face of the wind, frost, and snow, which rendered it impossible for the bees to venture forth, and live. Our experience with the carpet quilt is that it is *ample* as a protection both during winter and summer.

During the whole of last year with over a hundred stocks we used no other crown cover, and our bees were never more healthy or contented, and the facility with which they could be inspected has decided us in favour of the quilt as the safest and best crown covering for general use. The introduction of the impervious materials mentioned, would undo all the advantages derived from the porosity of the quilt, and in cold weather the latter would become wet, and probably mouldy from the condensation within it of the moist vapour of the air.

In our neighbourhood, the crocuses are followed by the palm-willow, japonicas, apricots, wild nettles, almonds, furze, &c., which, though comparatively scarce here, keep up the excitement which needs artificial support, and any thing that can be provided, to come in early with them must, of course, be beneficial. Mignonette is excellent, and with borage would form lasting pasturage. An acre of clean ground (*i.e.* free from weeds), well manured and sown with borage, would (the Americans say) be sufficient for a hundred stocks. All the seeds mentioned are perfectly hardy, and when once a succession is provided for, the plants come up of themselves. Borage will grow like a weed, it comes up all over our garden, so we never need plant it, the difficulty is rather to cut it out where it is not wanted. Phacelia is a valuable plant, and it comes in just after the fruit-blossoms, and forms a capital stepping-stone from them to white clover. A large bed of it would be invaluable if sown in April, it grows about 18 inches high. Corn-flower is a very free flowering plant, later than the phacelia, continues longer, and is very pretty, about two feet high. Balm of Gilead is also about two feet, and is very sweet, yielding honey freely.

The best gloves we know of are of india-rubber on cotton or linen foundation, but to be actually sting-proof and comfortable, should be worn over a thick pair of woollen ones. The syrup will be good if it has not become fermented or sour, which can be easily ascertained by the taste. In either case it would be better not to offer it to the bees during cold weather as it might cause dysentery. Yellow broom is good for bees, but the honey yielded is not nice for table. A saw-cut under top bar is a poor guide even when filled with wax; a ridge of wax is better, such as may be formed with the 'indispensable guage,' or a strip of wax sheet put into the saw-cut and cemented in by the use of the wax-smelter would be better still.

The method of administering the artificial pollen which we have always found best, is by cutting up some yellow deal shavings and placing them in an inverted super, one of Lee's, or the Carr Stewarton, having glass sides will be best, as the sun's rays will get through and keep the inside warm, and then simply sprinkling the pea-flour upon the shavings. The shavings having a balsamic odour, will of themselves attract the bees, and the pea-flour will afford them occupation, but it should not be left on cold afternoons, nor at any time while crocuses are about unless the flowers be open.—Ed.

Query No. 144.—Oh, dear, what am I to do?—To-day has been so bright as to draw out my bees, but the wind being a little cold the bees drop by the score and are lost. I have watched them, and have picked up nearly a hundred, which I put into a glass jar and took in-doors, warmed them up, and brought them round, and returned them to the hives; but I am doubtful as to the wisdom of opening the hive just at this time, as the bees are so active and jump out in a moment. I put some in the hive-mouth, but the little creatures would come out again.—R. R. G.

Reply to No. 144.—We can only advise what we have often before recommended, viz. that the rays of sunlight in winter should be prevented shining directly into the entrances of hives, that the bees may not be attracted thereby, and induced to fly out in cold weather.

Had the ground been covered with snow, it would probably have been thought that it (the snow) was the cause of their flight and death, as is often supposed, whereas the undue excitement is caused by the sunlight only; but snow (being white) shows the dead and dying bees upon its surface, and is usually accredited with the loss. We have many times referred to the rapid loss of old bees in early spring, and the consequent diminishment of the strength of the colony when it ought to be increasing, and age may have some influence in the present instance. It is of great importance that bees should not be tempted out of their hives, to die, at this particular time, as such losses of life are not reparable except by the breeding of young bees, and this cannot go on in diminishing colonies. The best thing *to do* in such a difficulty as the present is to pick up all the benumbed bees, place them in a bottle, and invert it over their hive, if it can be

identified; otherwise, we place the bottle over our weakest stock, and give the bees a chance of further existence.—Ed.

Query No. 145.—There is a circumstance that puzzles a number of the bee-keepers in this locality to which, with your vast experience, you may be able to give a satisfactory explanation, and with this view I will try to give you as correct an account of it as I can.

On the 15th of August last I dethroned a common black queen from a strong hive in a straw skep, and on the 20th of the same month I put in at freedom a young Ligurian queen, which was evidently successful, as in four weeks afterwards young Italian bees were out flying. This goes to show that the new queen had been properly established; but here comes the difficulty: two days before the young Italian bees were seen, a queen was observed coming out from this hive, which took wing, and returned in about ten minutes; and in about the same time she came out again and returned in a short time with signs of impregnation attached to her. After this she was seen flying frequently, although proper young bees have been coming out constantly up to the present time, there were also a few young drones thrown out (dead); but I am not sure that they were Italian drones, although I carefully examined them: therefore what I want to know is if the queen that was seen flying out and in is a young queen that they may have bred, or will it be the Italian queen which was introduced, and if there is a possibility of having two queens in this hive?—H. R., *Holmscroft, Greenock.*

Reply to No. 145.—We regret that the above, although evidently written some months since, has only just been received (Feb. 10, 1876), owing, we believe, to the omission on the part of a subscriber to whom it was intrusted to be forwarded.

The puzzle is, to our mind, as clear as noon-day; as it often happens that imported queens which have suffered hardship on their long journey, either die soon after their introduction to English stocks, or become so elated with their new position after their late experience, that they lead off swarms (?) of a size so small that the whole of them could be contained in a breakfast cup of ordinary capacity. The eggs such a queen would deposit during her stay in the hive would furnish the young bees which gave so much satisfaction at the first month's end, and after her departure, young queens would be raised in the natural course of events, and at so late a date the frequent flight of the survivor, considering the paucity of drones, is not remarkable. It has been ascertained that two queens do sometimes exist in the same hive, but their mutual forbearance is quite phenomenal; and it is usually found in such cases that one of them is so old and worn-out as to have lost the majesty of sovereignty, and is simply tolerated in the dominions of the regnant queen.—Ed.

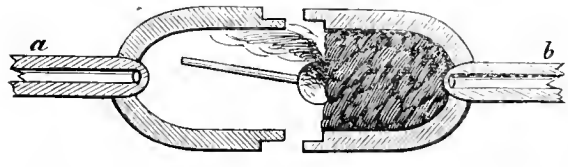
Query No. 146.—I thank you very much for the information contained in your last letter. Thanks to your excellent *Journal* and to your replies to my queries, I am in a very different position for commencing the year's bee-keeping work than I could have ever dreamt of being, for until I saw the advertisement of the *Journal* and got it, I had been trying vainly for five or six years to make bee-keeping a success. Being very anxious, therefore, to commence this year aright, is my excuse for once more troubling you.

1. When feeding on the carpet-quilt, do you still keep on the folds of *blanketing*, which are placed, during the winter, on the top of the carpets? If so, how do you feed? Do you recommend cutting feeding-hole though blankets as well as the carpet? or simply wrap the pieces of blanket round the feeding-bottle, on the top of the carpet?

2. You recommend in one of your *Journals*, after a swarm has been hived in a bar-frame hive (on which quilt is used instead of crown-board) to feed the bees *directly* over the cluster (which is not always in the centre). How can this be done with the syrup bottle? for it is scarcely possible to have feeding holes in one carpet sufficient to feed the bees at any point they may be clustered?

3. Have you ever found any trouble with the wedges of your hive when wanting to let loose the floor-board? Last Saturday I had to take hammer and chisel to get them out, they were fastened so tightly; do you think thumb-screws would answer as well fixed to a rail under the floor-board, in front, and at back of the hive?

4. I have had a joiner in this neighbourhood to make for me a simple smoker (something like I had in my mind when I wrote to you on the 11th of November, only I then thought of gutta percha). It is turned out of cedar wood, it is like two wooden pipes made straight



instead of turned up. One fits over the other lightly—and in one end is a piece of pipe stem as a mouth-piece; one bowl receives the tobacco and is lighted like an ordinary pipe, and the other is put over it, and the end of that pipe is placed in the hive to be operated on, and by simply blowing through the lighted pipe, as much smoke as is necessary for most purposes, I should say, is obtained.

5. Do you keep on your quilts when you have supers on your hives, or do you use the adapting boards?

6. Will you please give me your estimate of the value (*a*) of a stock (not including the hive) of bees, combs, &c., in a bar-frame hive about Woodbury size, well filled in October; (*b*) what would be the value of above with *fixed combs?* (*c*) what would be the value of (*a*) in April after having got over the winter, and (*d*) what would be the value of (*b*) in April.—J. H., *Devonshire.*

Reply to No. 146.—When feeding with the carpet on the frames, we use one or two thicknesses of carpet in pieces the size of the hive, place the stage upon them, and lay odd pieces of any shape all round the stage, and if it is necessary to protect the neck of the inverted bottle from the bees we wind a strip of damp rag, tainted with carbolic acid between the shoulder of the bottle and the vulcanite, and all is secure.

When a swarm is hived, if the bees have not clustered in the centre, which can easily be ascertained by raising the corners of the quilt, we would with a sharp penknife cut a hole immediately over them, running the knife along the top of or between two of the frames, and cutting out a piece of the carpet (say an inch square, or an inch and a half long and half an inch wide) and putting on the stage, cover up as above suggested.

We have never had any difficulty with the floor-board and wedges, but we do not leave them long unused. The withdrawal of the floor-board enables one to peep up at the bees at night without disturbing them, and by aid of a light much information may be gained. A thumb-screw might be

efficient, but it would be too slow for us, and the other is so very simple. Four wedges instead of two might be an improvement, but then there is the chance of losing one or more of them.

The smoker will doubtless be an efficient one.

When supering we remove all the quilts, and put the supers close upon the frames.

It is almost impossible to value bees except in one's own locality, or where one buys stock from. Here a stock (*a*) would be worth, supposing it to be in sound wintering condition, from 30*s.* to 35*s.* Ditto in skep or box hive, 20*s.* to 25*s.*, and in spring they would be respectively worth from 5*s.* to 7*s.* more.—Ed.

Query No. 147.—A day or two ago I discovered I had lost a hive, which was a very late swarm of last year. I found very little comb in the hive, though there was still some little honey left. The hive had been fed through the autumn and winter, and was fed just before this last sharp frost, when all the bees seemed lively. I moved the hive into a small warm green-house, opened it, and found the queen, which I sent into the house. On going into the green-house two or three hours after, I was much surprised to find a large number of the bees slowly reviving and crawling about the hive. Unfortunately the queen had been thrown away, or I almost think the hive might have been saved.

I lost another hive in January, an artificial swarm from a straw skep. The hive was a large one, 18 inches from back to front, 14½ wide, and 11 deep. The swarm had six frames given them, which they only one-third filled with comb. There was plenty of sealed and unsealed honey in the combs, but I could find no queen. I suppose she perished in the autumn. Should I leave the unsealed honey in the combs for a swarm this year? I have one of Neighbour's glass hives (nine frames) with combs in it a year and a half old; the outer combs are rather mouldy this year. Should I meddle with them at all?

Reply to Query No. 147.—In cold weather, with but little or no food in the hive, bees often become torpid, and assume the appearance of death, and yet, when brought into a warm apartment, many will revive.

It is, however, a painful fact, that in most instances they will have first endured the awful pangs of starvation from hunger, which the cold mercifully puts an end to; and as a rule it will be found that such revived stocks have seldom sufficient stamina left in them to enable them to reproduce sufficient of their species to come with safety through the ensuing bad weather of early spring.

Unless there is a quantity of honey in the combs *worth* removing, it will be better not to interfere with it, but to leave it for the benefit of the swarm to which the combs are to be given.*

Slight mouldiness is not detrimental to empty combs, as the bees will clean them when they want to use them. It will, however, be as well to remove them for the present, and hang them up in a dry room or cupboard, to prevent the spread of the fungi.—Ed.

Query No. 148.—For the benefit of others as well as myself will you kindly answer the following in Query-column, in March No., if convenient?—I have two stock-hives; one is a flat-top hive, with feeding-hole at top; the other is a bell-shaped hive, and no hole at top. Both are straw hives. Now, the one that is bell-shaped has always produced the most, and best, and earliest, swarms. What is the reason?—Isaac Land, *Millers' Green, Wirksworth, near Derby, 22nd Feb.*, 1876.

Reply to Query No. 148.—The dissimilarity in the results from the stocks is not due to the shape of the hives, but must be sought for in the apiarian conditions at the time of swarming. Probably the bees in the flat-topped hive were not so numerous as those in the other, and did not build so much worker comb before the honey glut induced them to build drone comb for storing, and which afterwards, producing drones only, prevented the proper increase of workers, and ruined the prospects of the colony. Supposing both swarms to have been of equal weight; if the 'flat-tops' were a week later, *i. e.* nearer the honey glut than the 'round heads,' a similar result would ensue. Perhaps the flat-tops had an older queen than the others, and could not furnish eggs to fill the cells so fast as they ought, by the law of the hive, to be deposited, and preparations were made for dethroning her, which preparations would first consist in the so-called 'setting' of a number of drone eggs. This could scarcely happen except the swarm was one driven from a stock of ne'er-do-wells, as a queen of such indifferent ability could not produce sufficient bees to make a natural swarm. Possibly the round-heads were a strong cast with a young queen, and as is usual with such built worker-comb only during their first year, and so ensured a large predominance of workers over drones. Perhaps our correspondent has been using the flat-topped hive, with the hole in it, for supering purposes, and *keeping the other for swarms*; we notice, he says, nothing about the honey result. Perhaps if any of our suggestions are near the mark, our correspondent will kindly fulfil his good intention, and, for the benefit of others, make the facts known.—Ed.

* It is probable that the queen was an aged one, and died after her effort to establish the new colony. Young queens seldom die during winter, except from cold or hunger.

NOTICES TO CORRESPONDENTS & INQUIRERS.

Rev. R. W.—The best Manual we know of is that supplied from the *Journal of Horticulture* office, 171 Fleet Street, price 4*d.* That, however, is subject to correction, as regards the multiplication of stocks.

M. J., *Chepstow.*—We will show you any and everything possible in bee-culture when you favour our bees with a visit. April will be an interesting time, and we hope a fine day will be selected.

F. H. P., *Tunbridge Wells.*—The 3*s.* and the 6*s.* 6*d.* hives are essentially made for cheapness. To give room for a feeding-bottle under the roof of the latter, it is not necessary to alter the roof itself; a shallow box, without top or bottom, of the same size as the hive, placed upon the hive, and surmounted by the roof, will give all the room necessary, and form excellent super space.

P. L. F., *Bo'ness, N.B.*—There is nothing in the combs to lead to a suspicion of disease. They may be given to other stocks, or saved for swarms of next season with impunity. The bees will tear out the dry and mouldy pollen as soon as the cells are required for use.

The Crystal Palace Recipes.—A correspondent suggests that the recipes for making mead, honey-cakes, &c. sent to the Palace Show should be published in our columns for the benefit of those who might wish to use them.

OUR WANT AND SALE COLUMN.

WANTS may be advertised at 2*d.* per line of eight words, for one insertion, renewable in succeeding months, for 3 months, without alteration, for half price. Replies must contain stamped directed envelope, or they will not be forwarded.

No advertisement must contain more than sixteen words. P. O. Orders to be made payable to C. N. ABBOTT, office of *British Bee Journal*, Hanwell, W., London.

—o—

No.		s.	d.
216	Wanted.—*British Bee Journal* for Sept. 1873, Oct. 1873, March, 1874, and April, 1874.		
218	Several pure Ligurian and hybrid stocks for sale, in bar-frame hives, price according to strength, &c.—Shropshire.		
221	Wanted,—Stock of Pure Ligurians in exchange for Two Stocks of Black Bees. Lincolnshire.		
225	Three Stocks of Hybrids in Bar-frame Hives, with moveable floor-boards, and on legs. Three windows in each hive. Will stand the winter. Leicestershire. Each	30	0
226	Four Stocks of Hybrid Bees, in Improved Cottage Woodbury Hives. Heavy enough to stand the winter. Leicestershire. Each ...	40	0
227	Stock of Pure Ligurians, queen 1875, in Woodbury hive, with stand, super, and cover, complete. Good condition. Gloucestershire ...	84	0
228	Two Carr-Stewarton Body Boxes, been used, straw. Each	7	6
229	Two ditto, supers, new. Each	7	0
230	One Huber Leaf Hive, good as new	21	0
231	One pair Neighbour's Sectional Supers, new ...	5	0
233	One Stewarton Set, new	15	0
234	Two Neighbour's Supers in sections. Quite new	5	0
236	Home-made Hive, Quinby frames, two division boards, collateral principle, super cover and floor-board (cheap)	15	6
237	Walton's Extractor, in frame, &c. takes frames 13 by 18. Photo forwarded	55	0
239	One Stock of English Bees in a Woodbury Hive, combs all straight, just the thing for Ligurianising	42	0
242	Six Float Feeders, each 1*s.* and Ten Pint Feeding Bottles, 4*d.* each.		
243	Several strong stocks of Black Bees, in flat top straw from 15*s.* to 21*s.* each. Lincolnshire.		
244	Wanted.—Strong, healthy skeps of Black Bees. Weight no object, if full of bees and plenty of comb.		
246	Honey.—About 40 lbs. of purest drained nectar, from supers from the apple orchards of Herefordshire, in white jars of about 2 lbs. each, at 2*s.* per lb.		
247	Honey.—A few glass jars of splendid Honey and Comb from Devonshire supers. Very choice. Per lb. 2*s.* Glasses, 1*s.* each, may be returned.		
248	For Sale.—Starling's new 4*l.* Honey Extractor. 70*s.* will be accepted.		
250	Pure heather and clover Honey (cold drained) 2*s.* per lb. in small tins, package free. Aberdeenshire.		
252	Wanted.—Vol. I. 10*s.* 6*d.* given for complete copy, bound in cloth.		
261	Bee Boxes, of japanned tin, ventilated (been used), for carrying fumigated or driven bees from condemned stocks. London. Each ...	2	0
262	Mellilot Clover Plants, per dozen	2	0
263	Solid Barley Sugar in 1 lb. bottles, with stick in centre as recommended, per doz. bots. included	10	6
270	Offers wanted for 'Journal of Horticulture,' posted free, Friday nights, per 3 months, payment in advance.		
271	150 lbs. of pure run Honey, in tins containing 25 lbs. each, 3*s.* each charged for the tins, and the same allowed when returned.		
273	Bound Vol. II. *British Bee Journal*, almost new	8	6
275	Starling's £5 Honey Extractor, almost new ...	80	0

WANT AND SALE COLUMN—CONTINUED.

No.		s.	d.
277	Raspberry blossoms for Bees—strong canes, red and white, per dozen	2	0
278	A Cottage Woodbury Hive	15	0
279	A Woodbury Hive, 11 bars	7	6
280	One 10-bar Hive, double-walled, wide-shouldered, bottomless frames; reversible floor-board, four legs, handsome super cover and roof. Very cheap	30	0
281	For Sale.—Twenty-four Vols. of the 'Journal of Horticulture,' minus 9½ numbers and four Indices, containing the valuable Bee experiences of the late Mr. Woodbury. Price of the whole	42	0
282	For Sale.—A number of Straw, Super, and Stock Hives, not new but in healthy condition, also Bee-books, &c. Might exchange part for book offers. Salisbury.		
283	Wanted.—Honey in Comb for Table, in Glass Supers of six to ten pounds each.		
284	Two Cheshire twin-frame Nucleus hives, double cased and painted, not been used. Lee's make. 'S.D.R. Each	12	6
285	Three Stocks Black Bees in straw skeps. Near Leamington. Each	20	0
286	Three Stocks Hybrids in Woodbury hives. Near Leamington. Each	35	0
287	Excellent copy of Nutt's Collateral Hive, made by a first-class joiner. Carlisle	20	0
288	Neighbour's Cottage Hive, windows, glasses, thermometer, &c. Carlisle	15	0
289	Six strong healthy Stocks of Bees, three in improved Cottage Woodbury Hives. Godalming. Each	37	6
290	Two ditto, in circular wooden hives, lined with straw. Godalming. Each	30	0
291	One strong Stock in box hive. Godalming ...	30	0
292	'Management of Bees,' by Samuel Bagster, numerous illustrations; also, 'Practical Bee-keeping.' The two books, post-free, only ...	4	6
293	'Practical Directions for the Management of Bees to the Best Advantage,' by John Keys; also, 'Bees, their Habits and Treatment.' The two books, post free, only	5	6
294	For Sale, Nos. 1, 2, 3, 4, 8, 10, 12, 17, of *British Bee Journal*. Each	1	0
295	'The Management of Bees,' by Samuel Bagster, 2nd edition. 240 pages. 40 engravings ...	5	0
296	'The Cottager's Manual,' by Huish. 104 pages	2	6
297	'The American Bee-keeper's Manual,' by J. B. Miner. 350 pages and 35 engravings ...	5	6
298	'An Enquiry into the Nature, Order, and Government of Bees,' by Rev. John Thorley. 2nd edition, 1765. 158 pages	4	6
299	'Bees: Their Management and Culture,' by Mrs. Tupper. 40 pages	1	6
300	'A Complete Guide to the Mystery and Management of Bees,' by Rev. William White. 1771. 94 pages	4	0
301	'The Annals of Bee Culture,' by D. L. Adair. 1870. 62 pages	3	0
302	'Progressive Bee Culture,' by D. L. Adair. 1872. 24 pages	2	0
303	'The American Bee-keeper's Magazine,' Vols. I. and II. 22 numbers	11	0
304	A new Carr-Stewarton Hive, with 3 boxes, crown board, and floor board. Manchester	35	0
305	Phacelia seed, home grown. Leicestershire. per oz.	1	0
306	One Stock pure Ligurians, in Cottage Woodbury Hive, very heavy	63	0
307	One Black Stock, in straw skep, two years, on stools, heavy	15	0
308	One ditto, ditto, heavy	15	0
309	One ditto, ditto, in 6*s.* 6*d.* hive	20	0
310	One ditto, ditto, ditto	20	0
311	One ditto, ditto, ditto	20	0
312	One ditto, ditto, ditto	20	0

THE

British Bee Journal,

AND BEE-KEEPER'S ADVISER.

[No. 36. Vol. III.] APRIL, 1876. [Published Monthly.]

Editorial, Notices, &c.

END OF VOL. III.

We respectfully beg to remind our readers, that with this number the third volume of the *British Bee Journal* will close. We thank our patrons most heartily for their support, and are deeply grateful to our numerous contributors for their exertions in our behalf; and in the interest of bee-keepers generally we thank them for their earnest endeavours for the promotion of apiculture. Of our own exertions we would speak with diffidence; we have done our best to aid the great work, and have succeeded not beyond our expectation, but often in spite of opposition, in introducing reforms in bee management, which after lengthened trial have been pronounced invaluable. As the *fons et origo* of the Crystal Palace Shows and the British Beekeepers' Association, we feel justly proud; and hope that the latter will presently fulfil the design with which it was brought into existence. The exhibitions of manipulation with live bees were originated by us, and have been eminently successful in the various districts in which they have been carried out; and have doubtless been the best means of awakening renewed interest in the humane culture of our favourites; and from applications which have already been received, we have every confidence that during the coming season 'manipulation with live bees' will be a great source of attraction in many new localities. Our efforts to simplify and perfect the bar-frame system of management, which alone gives control over the bees and combs, have met with due appreciation by bee-keepers generally; and the descriptions in the *Journal*, with the method of making the various hives, which we believe contain the most correct dimensions, and the greatest facilities for manipulation, have enabled many, who otherwise could not afford to adopt the moveable comb principle, to make their own at a trifling cost; and, indeed, has induced new manufacturers to enter the field and compete for public favour. Our shortcomings have doubtless been many, and we much regret them; but ours is work for which we cannot hire help, and neither our tongue nor pen is that of a ready writer; nevertheless, we have always endeavoured, often with an aching hand, to comply with the requests of our correspondents.

Before commencing Vol. IV., we are anxious to print the addresses of our subscribers for the year, so that there may be no excuse for *Postal errors*, which have occurred far too often for our comfort or profit, and must have been equally annoying to those who did not receive the *Journal* at the usual time. We therefore hope,—nay, beg as a personal favour, that our patrons and friends will immediately forward their full postal addresses, with their subscriptions for the year commencing May 1st next, that we may get our work in advance, and not be obliged to depend on the handwriting of assistants.

In our next we intend to commence a series of articles on the mysteries of the bee-hive, with fitting illustrations, intended to lay bare all that is known of the internal economy of the wonder-working bee. The articles will be educational and practical; they will tell the most humble, in simple plain English, all that goes on in a hive under the varied circumstances of its existence, without preamble, and with no long-drawn flights of imagination. We propose to tell just what we know, and no more than we know; and if afterwards any one pleads ignorance of the nature of the contents of a bee-hive, it can only be because he has not read the *British Bee Journal*.

APRIL.

The past month, proverbially famous for its leonine and lamb-like qualities, has, this year, been true to its character; and after treating us in its early days to some of the wildest of March weather, it made amends in its fourth week by its gentleness and amiability; and while we write, the sun is beaming delightfully, the sky is beautifully clear, and the atmosphere deliciously soft and balmy, as becomes a Ladyday. Our bees, after such a sharp, cold spell, have again come forth and fill the air with their music, and who could refuse them a

picnic after their uncomfortable imprisonment? Every warm sunny corner and sheltered nook has its dish of syrup in comb or under paper, and our 'big sunflowers' (skeps partly filled with shavings) are furnished with an extra supply of the coveted pea-flour, and right merrily do the bees enjoy their pleasant outing. The weather is, however, too much like a coquette to afford grounds for believing in a continuance of her favour, still we may hope that having behaved with traditional correctness during the month of March, the seasons have righted themselves, and that the 'old-fashioned winter' through which we have passed, will be followed, as of old, by such seasons as are *naturally* expected. And, indeed, in the average of years a good season is due, and we trust the forthcoming will be a joyous one both to the bees and their masters.

Preparation.—A fox once (so says the fable) asked a wild boar who was sharpening his tusks, why he took so much trouble when no enemy was in sight? to which the latter replied, 'that if an enemy *were* in sight, he should probably have something else to do;' now although we do not wish to be likened to either quadruped, we would remind those of our readers who have not made preparation for the coming swarming time, that it brings with it so many duties that it will be wise to take time by the forelock and prepare their hives, supers, and stands, as quickly as possible, so that when the happy time comes there may be no hurry or discomposure, and no necessity for hiving in haste, and repenting at leisure over crooked combs, or regretting the departure of valuable swarms through having no hives to put them into.

Makeshift Hives.—Nothing conduces more to the comfort of the bee-keeper at swarming time than the possession of a few makeshift hives in which frames could be temporarily arranged for the reception of swarms which might come unexpectedly and undesired. Four pieces of board nailed together to form a box any multiple of $1\frac{1}{2}$ inches in width (according to the number of the frames), and a quarter of an inch deeper, and half an inch longer from front to rear than the frames are in those directions, are almost all that are needed. A three-cornered entrance can be cut with a saw, a floor-board extemporised out of any odd pieces, and with a few thicknesses of carpet for a quilt, a hive may be made in an hour which will, perhaps, prevent a great deal of trouble in an emergency of the kind suggested. The spaces between the frames, if of the ordinary pattern, could be filled with slips of cork, but broad-shouldered frames would not require them. We are, of course, supposing that every bar-frame hivist has on hand, as he ought to have, a number of spare frames of the pattern he uses. How convenient it would be if a standard frame were determined on, so that under any circumstances similarity of size and shape might be depended on if it became necessary to purchase them in a hurry.

Artificial Pollen.—Indications of Queenlessness.—The use of artificial pollen, at a date so much earlier than the natural supply presents itself, affords an excellent test of the presence or otherwise of queens in hives which at this season it may be unwise or impossible to invade. Stocks having fertile queens will be breeding rapidly where supplied with the invaluable stimulant, and will on all fine days be carrying it into their hives in their 'knickerbockers,' while many will present the appearance of having rolled in the flour, and will enter their hives as white as millers; but, here and there a hive may be seen with but few bees at the entrance, no animation, no millers, nor even the semblance of a grain of pollen on them, and such hives may, as a rule, be pronounced queenless. It is worth something to be enabled to discover queenlessness thus early in the spring, as by uniting early, a second weak stock may be so strengthened as to enable it to make amends for the loss of the queen's services in the first, while the combs of the first, having no brood in them, will be available for the reception of a swarm which will come earlier, through the bees having been thus united.

Aspect of Hives.—However necessary shade may be to bees during the height of summer, or to the entrances of hives during bright gleams of sunshine in winter, we trust our readers will not be induced to place their hives in positions where the sun's rays cannot possibly make themselves felt, more particularly in damp localities. We have recently witnessed the consequence of placing a large number of hives to winter on the north side of a high wall. They had been purchased, and considered *safe until April*, hence they were placed where it was thought they would winter quietly, the weaker stocks having been awarded the sunny side, so that if examination became necessary, a fine day might be taken advantage of without injury to the bees.

There were thirty-two stocks on the north side of the wall, all in straw skeps, and although most of them were heavy, few of them were in a condition to survive. Several were dead entirely, and the majority too weak in number to live. In some the combs were full of green mould, in others the straw seemed wet through and almost rotten, and out of the whole number not more than five were in good condition. This was undoubtedly caused by the absence of sunshine, the continual presence

of damp air, and the nearness of the cold, wet wall; conditions which kept the bees cold through constant abstraction of heat, and caused them to consume food largely to generate heat anew, a process too exhaustive to be long continued with impunity, and effectually bringing about their destruction. Theory on this subject may be useful, but the foregoing *facts* are more valuable, and we would counsel our readers to place their bees where at least they can have the benefit of the sunshine when it offers in winter, so that the hives and their surroundings may be kept as dry as possible.

When a hive is once set down, the exact position of its entrance should not be altered; but the body of the hive may be slewed round towards the west or east, as it may be desirable to turn the entrance towards the morning or afternoon sunshine, aspects to which many bee-keepers attach great importance; and in all such cases, the entrance should be as if fixed on a pivot, round which the body of the hive may be turned. *Moving the entrance* only a few inches to the right or left of its position causes the bees returning from the fields to lose themselves, as they will alight at the old spot and wander about in search of the newly placed entrance; this is highly interesting to observe, but causes great loss of time to the bees.

FEEDING.

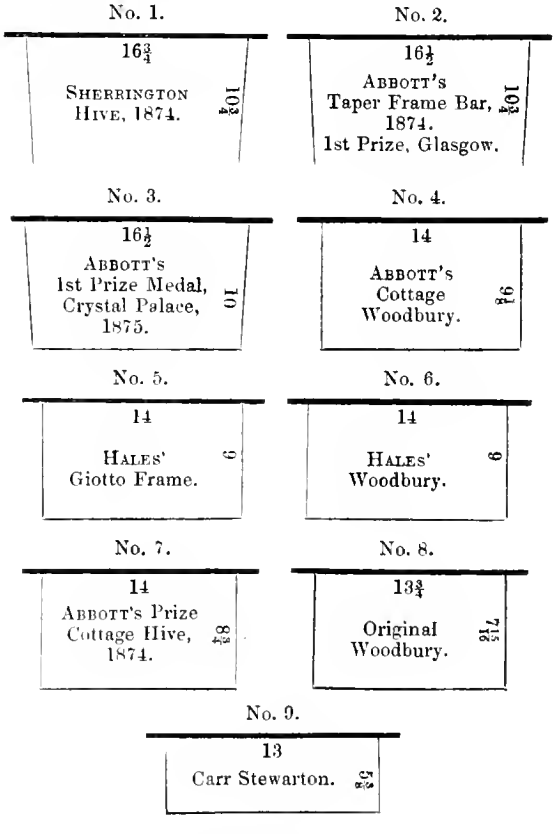
We cannot too strongly urge the necessity for gentle continuous feeding until the fruit-blossoms appear and the weather will permit the bees to obtain their own livelihood. On the 14th ult. our first gooseberry-blossom appeared, and on the 24th a plum-tree (Jefferson) first opened its beautiful buds of silver and gold, and numerous gooseberries and currants yielded to the sun's gentle power and wooed the bees to their attractive nectaries. But, alas! the gleam of hope engendered by this fair seeming was quickly dispelled, for the wind veered and blew from the east, and a dull chill ensued which may continue during the greater part of the present month.

While such unkind weather prevails, feeding will be necessary in almost all cases, for although many trees may struggle into blossom they will yield little or no honey, in consequence of the dryness which usually accompanies an east wind, and, therefore, the busy appearance of the bees amongst the blossoms may be delusive.

Artificial pollen gathering still goes on briskly during every hour of sunshine; and this alone is stimulative, but without honey or syrup is not sufficient for the wants of a colony, therefore, by all means feed them, and do not let the bees starve at this critical juncture on the threshold of plenty, but without the physical ability to obtain it.

THE STANDARD FRAME.

For the further information of the public we present a view of the respective sizes of some of the frames in use in England, outside measure in each case being given, scale one tenth of an inch to an inch.

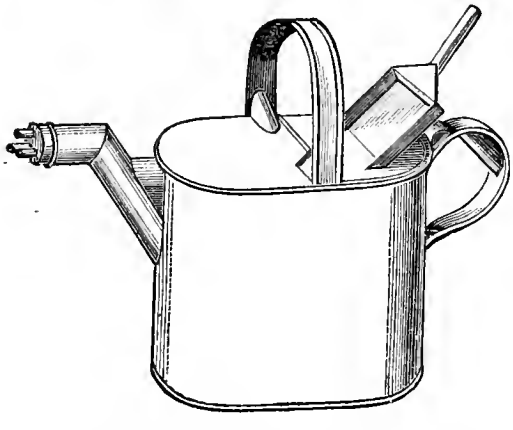


Nos. 1 and 2 have no bottom rails, and are narrower at the bottom than at the top. No. 3 tapers also, but has a thin rail at bottom. Nos. 4 and 7 are right-angled with very light rails at bottom. No. 5 is right-augled, and has its top rail and ends of inch material $1\frac{9}{16}$ wide, with light rail a quarter of an inch from the bottom. These frames are intended, we believe, to be placed together to form the hive itself, as in the 'Huber,' the first frame hive ever invented. A full description of the Giotto hive appeared in *The Field* a short time since. No. 6, also right-angled, is of same size externally as No. 5, but its ends are only ¼ inch thick, reaching to the floor-board of the hive, and of width to touch each other, forming when close together, a thin wooden wall within the hive. No. 8 is the original Woodbury frame, right-angled with botton rail $\frac{3}{16}$ thick, being of same size as the ends. No. 9 is the Carr

Stewarton frame, intended for storifying; it has a bottom rail of the same width as the ends and is a little narrower at the bottom than at the top. These are all the frames we are at present enabled to exhibit to our readers. Perhaps those interested will kindly favour us with the outside dimensions of any others they have in use, it will at least be interesting. In the meantime the question remains in abeyance.

SAFETY SYRUP-CAN.

We have, on a former occasion, exhibited an illustration of our Syrup-can, but at that time it was fitted with a cork and three quills, by which three fine streams of syrup could be poured upon a cluster of bees, or on any part of a hive or combs. It is now improved by being fitted with a brass screw and socket in



the nozzle, which is furnished with three small tubes, and further by the introduction of a simple groove under the handle, into which the end of a shovel can be inserted, and the syrup left upon it after using it allowed to run into the can without injuring a bee. This can is a great comfort in an apiary, as bees cannot possibly get into it; yet, by its aid, combs may be readily filled with syrup, or sprinkling done to any extent with safety.

STANDS FOR HIVES—COVERS FOR FEEDING-BOTTLES.

Those who do not use hives with self-stands, will find that four Australian meat-tins, placed close together, and filled with earth, will form an excellent stand. The best plan is to fill them with concrete, and paint them, when they will form a short quadri-cylindrical column, having a very neat appearance, and will be well-nigh indestructible.

The concrete needs no elaboration in its manufacture: the tins should be filled with loose rubble, stones, bits of brick, oyster-shells, or any hard, dry, garden clearings, and then a mixture of quick-lime and water of the consistency of cream should be poured into them to fill up the interstices. If cement be used instead of lime, they will become as hard and solid as marble. If expense is to be avoided, they may be filled with clay, rammed tight, or simple earth; but it is best to prevent them, when dry, from becoming nesting-places for vermin. These tins also form excellent covers for feeding-bottles, as having no irregularities at their edges, they fit close to the adapting-board or quilt. Of course, to prevent condensation within, under such circumstances, a few pin-holes should be made in the upper ends of them. These tins can be obtained almost without charge at any public institution where their contents are largely used, as at present they are considered inconvertible and useless.

EXTRACTING HONEY FROM OLD COMBS.

Many bee-keepers are in trouble because they cannot extract the honey from combs taken from hives last year, and which has become too thick to move. This is an old complaint, but we think a remedy may be found by giving the bees access to the combs and allowing them to carry the honey into their hives whence in its then liquid state it may be easily extracted. A sprinkling of water on the combs occasionally will help the bees in *their* work of extraction.

BREEDING.

Stimulated by the artificial pollen and sugar feeding, bees have been breeding rapidly, and to prevent the ill effect of cold upon the brood the entrances should be contracted as during the winter, until the bees by their bustle and excitement demand more room to pass each other.

The value of the quilt as a crown covering will especially be shown under the conditions now present, for in close boxes with wooden tops, and especially those with space above the frames, the cold will cause condensation of the moisture arising from the brood nest, and as a result the hives will be streaming with moisture which, absorbing the heat of the hive, often makes matters worse: whereas the *quilt* allows the moisture to pass off and prevents the chill, to which otherwise the hive would be liable.

SPRAY PRODUCER.

Our readers may be glad to hear of a cheap and handy little instrument invented we believe by 'Rimmell,' the great scent-manufacturers,

for distributing and filling the air with odours. It is composed of two small ivory tubes 2½ and 4 inches long, respectively hinged together at the end so as to fold and go into the waistcoat pocket. When open the tubes stand at right angles to each other, and if the longer leg be inserted in a liquid, and the shorter sharply blown through, the liquid will be drawn up and dispersed in spray. For spraying combs it is a most useful little implement and doubtless will be largely used.

THE SMOKER'S BEE PIPE.

An arrangement of two briar-root pipes of the usual shape, either of which may be smoked. One has a German silver ferrule on its bowl, into which the other fits after the manner of that described on page 216, March number, so that blowing through the empty one will force a jet of smoke from the mouth of the other.

BRITISH BEE-KEEPERS' ASSOCIATION.

A meeting of the Committee took place at Beaufort Buildings, Strand, on Thursday, at which there were present Mr. G. Walker in the chair, Messrs. Hughes, Henderson, Edwards, Hunter, Cheshire, and the Treasurer and Hon. Secretary.

The minutes of the former meeting were read and confirmed. The non-receipt of the medals and die was severely animadverted upon, and the secretary was requested to write a pressing letter to the makers on the subject. Tenders for the printing of 16,000 pamphlets on the purposes of the Association were opened; but as prices, although exceedingly near to each other, were considered high, the secretary was empowered to apply to another firm in the hope that a more moderate offer could be obtained. Mr. Edwards brought forward his proposition, 'That for the future the day of the meeting of the Bee Association be on the second Tuesday in the mouth, at 5 p.m. to half-past 6, after which hour a conversazione be formed, at which every member of the Association shall be admitted to take part in the converse, and that members be allowed to put any number of practical questions on bee-culture for information, and that the subject for converse be upon "Artificial Pollen: its advantages, if any." That Mr. C. N. Abbott be requested to be kind enough to state the time and subject of the future meetings, for the benefit of the members generally and the readers of the *Bee Journal* in particular.' Mr. Abbott was quite willing to second and *endorse* the proposal, but reminded the Committee that a similar one had been in the hands of the secretary for some months past, who had been empowered to advertise for suitable rooms for a monthly conversazione, and was afraid they could do nothing until such rooms had been obtained.

Mr. Edwards was very anxious that the proposal for a converse amongst members on Artificial Pollen should be adopted as the subject was most interesting, but Mr. Hunter reminded the meeting that no such resolution could be entertained, as notice thereof had not been duly given to the members of the Committee, so the subject fell to the ground. The secretary expressed regret at the circumstance, but was not aware of the necessity for sending an agenda paper to each member individually, and considerable surprise was manifested that the subject had not cropped up before. The meeting then separated.

Another committee meeting was held at the same place on Tuesday, the 28th March, 1876.

Mr. W. O. B. Glennie occupied the chair, and the members present were Messrs. Hunter, Cheshire, Walker, Henderson, Hooker, Jackson, the Treasurer, and the Hon. Secretary.

The estimates for the printing of the circular were considered, and it was resolved, 'That the tender of Messrs. M'Corquodale & Co., for 16,000 circulars, be accepted.'

The question of obtaining advertisements for the Pamphlet was also considered, and it was resolved, 'That the thanks of the committee be given to Mr. Hunter for his efforts in procuring advertisements, and that he be requested to continue his endeavours.'

The Balance Sheet for the year 1875 was ordered to be printed as soon as audited, and also a circular calling attention of the members to the alteration in the rules, &c.

Mr. Walker brought forward a motion as to the advisability of the Association possessing a journal of its own, and after considerable discussion it was resolved, 'That, having heard from Mr. Walker his exposition of his proposal for the establishment of a journal by the Association, the committee are of opinion that at present they are not in a position to move in the matter.'

The question of holding the annual exhibitions was well discussed, and the Hon. Secretary was requested to find out particulars as to the probable places of exhibition, and to report them at the next meeting of the committee.

The committee of the Association beg to apologise for the unavoidable delays (caused by a flaw having occurred in the die) in the issuing of the medals, and trust that they will shortly be able to distribute the medals to the successful competitors at the late show.

CALEDONIAN APIARIAN AND ENTOMOLOGICAL SOCIETY.

Minute of meeting held in M'Innes's Hotel, Hutcheson Street, Glasgow, on Wednesday, 22nd March, 1876.

This, the opening meeting of the Session, 1876, was the largest yet held, and the utmost harmony prevailed. Mr. Sword was called to the chair; letters were read from Messrs. Abbott, Patterson, Davis & Co. Mr. Bennett reported, on behalf of the Kibble Conservatory Committee, that the Directors, through Mr. Maxton, their Secretary, had kindly granted space for an observatory hive; and the September show, which will be held while the British Association are here, and arrangements are being made to have a lecture on the Natural History of the Honey Bee, it was arranged to augment the prize fund, have the show for two days and make it equal, if not surpass the Crystal Palace Show.

Messrs. Abbott and Neighbour were appointed agents to the Society.

BEES AT THE NATURAL HISTORY SOCIETY OF GLASGOW.

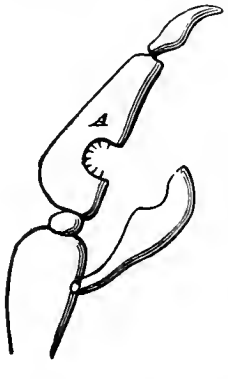
At the sixth meeting of the session, held on Tuesday evening, Feb. 29 last, in the Library of Anderson's University, Professor John Young, M.D., F.R.S.E., president, in the chair, a most interesting paper on bees was read by Mr. R. J. Bennett, the indefatigable vice-president of the Caledonian Apiarian and Entomological Society of Glasgow, who illustrated his observations with specimens of bee produce; and with the aid of a Lanarkshire bar-frame hive, which is excellent in all respects, he was enabled to convey to his hearers a vast amount of instruction on the management of bees on the moveable comb principle.

Mr. Bennett commenced by stating that the want of knowledge regarding the natural history of the insect, and of the unmistakable laws by which it is governed, led

every winter to the loss of many thousand stocks of bees from starvation, or if they should survive the winter, it was only to succumb during the months of March or April. He then discussed at some length the natural history and habits of bees, noticing it as a singular fact that the best forms of government existed among the lower orders of animals and insects, the ant and bee being striking examples, affording a good school of instruction and an opportunity of getting many useful lessons from the study of their mode of attack and defence, their government, order, sanitary arrangements, and economy. He pointed out the deficient arrangements which are generally followed in bee culture, and explained in detail the superior facilities afforded by the bar-frame over the straw hive in enabling the bee-keeper to inspect the working of the bees, and to remedy anything he might find wrong. In a state of nature, bees usually build in a serpentine form, using small pillar-like attachments to connect the sides of the comb. This renders their work difficult of inspection; but by adopting the bar-frame, and using guide-combs, they can be made to build straight, and each frame can be taken out separately and inspected, and anything that is found wrong easily rectified. At the close of the paper a conversation ensued, when Mr. Bennett had an opportunity of explaining more minutely in answer to questions put by some members, the arrangements which he recommended. He also stated that the Caledonian Apiarian Society intended holding its Honey Show in the Kibble Conservatory during the meeting of the British Association in September, and that during the summer it was intended to place there an observatory hive, where the public would have an opportunity of seeing the interior of a hive, and of observing its entire working.

BRIGHTON AND SUSSEX NATURAL HISTORY SOCIETY.

I beg to hand you a notice of the Microscopic meeting of the above association, at which the most interesting thing I saw was, I think, the apparatus for cleaning the antennæ of the bee. (It is not figured in the Italian prints: by the by there should be a set *with explanations* and names, &c., in *English* published). The object was something like the engraving, which represents the fore-leg of a bee; the antennæ are placed in the opening A, and then the little sail is closed upon it—only one side (A) has a brush.



The meeting took place in the Curator's room, at the Free Library and Museum, on Thursday evening, Jan. 27th last, the President, Mr. J. Dennant, in the chair. The subject for the evening was 'The Anatomy of the Bee,' in illustration of Mr. C. P. Smith's paper on the Bee read at the last ordinary meeting.—The President, in taking the chair, said there was no paper to be read, as Mr. Smith's paper at the last meeting had almost exhausted the subject, but as there was neither time nor opportunity on that occasion to examine the several parts of the bee described by Mr. Smith, an opportunity would be afforded them that evening of doing so. He believed Mr. Smith and other gentlemen had brought down a number of objects of a very interesting character.—Mr. T. W. Wonfor remarked that he had since the last meeting examined the curious bodies in the specimen of American honey shown by Mr. C. F. Dennet, and found they were crystals of honey sugar. It would be seen by comparing them with crystals of cane sugar how much they differed from it in their mode of crystallization. He found also plenty of pollen grains in the honey, but whether they were of the orange, on the flowers of which the bees were said to feed, he had not had the opportunity of verifying. He had also examined the *Isoetes* exhibited at the last meeting, and had found both macrospores and microspores. Mr. C. P. Smith, in reply to the President, said he had brought down for exhibition the general anatomy of the hive bee, mounted on one side, the ovaries of the queen-bee, a very uncommon object, in which the eggs were shown, as well as the sting, the tongues of the hive and other bees, and sting of wasp.—Mr. Woufor said he had the tongues of the humble bee, the honey bee, and the wasp for comparison, the stings of the wasp and bee, the latter showing the two serrated stings protruded from the sheath, the heads of the hive bee and wasp, parasites of bee, and crystals of honey and sugar.—The meeting then became a conversazione, when the above-mentioned and other objects illustrating the anatomy of the bee were exhibited by the President, Messrs. Haselwood, C. P. Smith, E. Glaisyer, R. Glaisyer, and Wonfor.—It was announced that the annual soirée would take place at the Royal Pavilion on Tuesday, February the 29th.

Among the objects exhibited were the epidermis of eye with hairs between facets; tongues of wild bees showing the paraglossæ; strigilis and velum of live bee, this wonderful organ was much admired, [the comb appears to be not modified hair, but is formed of chitine very regularly]; the hooks on inferior wings of bees and wasps; the sexual organs of bees; various trophi with maxillary and labial palpi.

A RIVAL TO THE BEE.

Some future Dr. Watts will have to write a song in praise of an insect distinct from the 'little busy bee,' but which, like it, 'gathers honey every day from every opening flower.' These insects (*Melipona*), of the order *Hymenoptera*, are distributed over the West Indies and the warm parts of America, ranging thirty degrees on each side of the equator. In Brazil, particularly, they swarm in enormous quantities, and they have this advantage over their cousins, the bee, that they have no sting, though resembling them more or less closely in different varieties. Such is the abundance of these insects that except in rare instances, they are not domesticated or systematically hived, although the ordinary bee (*Apis mellifica*) has recently been introduced into Brazil, where it is cultivated, and has given rise to an important industry. The melipona deposits its wax and honey in the hollows of trees, or in nests which it suspends from branches; and both these products being of excellent quality, are much sought after, and form a considerable portion of the articles of commerce of the provinces of St. Paul and Rio Janeiro. One variety (the *Scutellaris*) is especially noted for the good quality of its honey, and is in all respects a model insect. But there are some varieties which, like the drone and wasp among us, do not share this good character. They are both robbers, and make up for the want of a sting by using very powerful jaws, with which they can pierce the skin, at the same time depositing an acid, burning saliva, which causes serious and painful inflammation, lasting often as long as two or three

weeks. These insects and the common European bee do not always agree together; and when, as frequently is the case, a quarrel occurs, the bee generally comes off second best. If the melipona happens to be stung and mortally wounded, it does not release its hold of its adversary, but clings closer and closer, till even when dead the bee cannot shake it off, and soon perishes. Whether these honey-producers could be introduced into Europe is doubtful. One or two swarms have existed for a time at the Paris Zoological Gardens, and some varieties exist in Australia, but they would not probably survive in our climate.—*Globe.*

UNTIMELY SWARM.

The following extract is from the *Dundee Advertiser* of March 10th last:—'Not many days ago, a heavy stock hive in the Ballochbuie forest, Braemar, the property of Mr. James Bowman, one of Her Majesty's gamekeepers, threw off a large top swarm.' Three days after we read in the same paper that 'Owing to the continued severity of the weather in Braemar the keepers have commenced to feed the deer with hay and turnips.'

Correspondence.

*** *These columns are open to Subscribers, so that their queries, replies, correspondence, and experiences, may be* fully *and* faithfully *recorded; and for the discussion of all theories and systems in Bee-culture, and of the relative merits of all hives and appurtenances, that the truth regarding them may be ascertained. The Editor, therefore, must not be expected to coincide with all the views expressed by the various writers. All Correspondence is addressed to the Editor.*

ARTIFICIAL POLLEN.

In the *Journal* for March, Mr. H. Tuck, Upwell Isle, asks if he is right in using wheaten flour as artificial pollen?

All that bee-masters tell us of the pollen of flowers is, that it is very rich in nitrogenous matter, that it is an absolute necessity for the development of the embryo, and most probably a requisite of life to the adult bee; therefore in looking around the vegetable kingdom for a substitute, we have two orders of plants which are more or less rich in nitrogen—that is, the *Graminaceæ* and the *Leguminosæ*. In the first this substance is in the form of fibrin and albumen, and in the latter family in the form of casein, and the following table gives the comparative amount in 100 parts of each kind:—

GRAMINACEÆ—		
Rice ...	contains 6 per cent.	Fibrin and Albumen.
Maize ...	„ 11 „	
Wheat ...	„ 13 „	
Rye Meal ...	„ 13½ „	
Barley Meal	„ 14 „	
Oatmeal ...	„ 18 „	
LEGUMINOSÆ—		
Peas, dried ...	contains 23 per cent.	Casein.
Beans ...	„ 24 „	
Lentils, Common	„ 26 „	
„ Egyptian	„ 30 „	

The flour that is sold in the shops under the name of 'Revalenta Arabica,' is said to be made from Egyptian lentils. It is alleged to be the panacea for all human evils, and it contains the largest percentage of nitrogenous matter, being nearly as rich in casein as cheese, but the ridiculous high price (3*s.* 6*d.* per lb.) charged for it will prevent bee-keepers from using it, although it may be found to be the best (?) when common lentils (English tares) are nearly as rich in nitrogen, and ought to be had at as reasonable a price as wheaten or pea-flour.

Compared with lentils, beans, and peas, wheat and rye are poor in nitrogenous elements. They are the only two of the cereals, however, that contain free albumen, a substance that is at once assimilated by the system. 1 lb. of rye contains 213 grains of albumen, and on that account is a very nutritious article of food, and 1 lb. of wheat contains 126 grains of albumen. If the effect on bee-life is the same as on the higher animals, and I think the analogy may be allowed here so far as the nervous and muscular systems are concerned, then the German bee-masters are correct in saying rye-meal and wheaten flour are *the* best substitutes for pollen. Last spring I only used unbolted wheaten flour in my apiary, and all my hives were packed with bees easily in May, and had the season turned out favourable, I would have had a very large harvest of honey. They have all wintered well and are now healthy and strong. I have this spring been trying them with the different sorts of flours, and they seem to take all equally fast, so I cannot yet say whether they have a choice. Now that the British Bee Association—which is doing so much in promoting bee-keeping—have taken up this question of artificial pollen, we shall expect to know soon which is the best, and what are its advantages, effects, &c.

If Mr. H. Tuck cannot get his bees to take the flour out of 'our Editor's' 'big sunflower,' when his crocuses fail, let him procure a few sheets of tissue paper of different colours—say blue, pink, purple, green, yellow, and white, and get some of his lady friends to make artificial crocuses for him, and let the stalks be made of bits of wire two or three inches long so that they can be stuck into the ground. A bed of those paper crocuses laid out in the garden on a fine calm sunny day, with a small tea-spoonful of flour in each, will soon attract our little favourites in thousands, and their joyous happy song, their pleasant contented hum, their incessant toil, and their indefatigable industry, would gladden the heart of an anchorite, and give sages a lesson in wisdom.

A permanent bed of those everlasting crocuses could be erected on a stage, and if protected from the weather with a sash, they would last the whole season; and if the combinations of colour were artistically arranged, they would look beautiful—even sublime! When on a genial day in spring, the smiling sun would invite our pets in thousands to enjoy the ample supply of provisions laid out for them. Such a spectacle would fill our anchorite with wonder and amazement, and make him exclaim in the words of the German poet:—

> 'Hark! what is so gaily humming
> In the little garden there?
> Hark! what is so briskly whizzing
> Through the still and silent air?

'Friend, it is our bees, the darlings,
Now enlivened by the spring;
Yes; the winter is departed,
And once more they're on the wing.

* * * *

'See how busily they traverse
To their pasturage and back,
That they may by toil unwearied,
Save the commonwealth from wreck.

'Look, O look, what loads of pollen
Bring they in with heedful care.
Nurselings, fear not, for your cravings
Here's sufficient and to spare.'

Arbroath, 14*th Mar.* 1876. J. S.

POLLEN.—BEE FOOD.

Many readers may be interested in the following extracts from the *Bienenzeitung*, which gives the results of four separate analyses of the above.

Analysis No. 1.

100 parts contained 12·307 water, 3·115 ash.
Soluble in water, 69·592. Residue (principally pollen cuticle), 30·408.
Evaporated by 110° gave 57·284.
In the 100 parts dissolved in water are:—
24·138 parts sugar, 0·647 parts phosphoric acid, 1·311 nitrogenous.
Estimated of the 100 parts evaporated by 110°:—
42·137 parts sugar, 1·129 phosphoric acid, 2888 nitrogenous.
Comparison in weight in the following, showing their composition:—

	Ash %	Phosphoric Acid in Ash %	Water %	Nitrogen in 110° Evaporated Substance %	Phosphoric Acid in Raw Substance %
Wheat ..	2·40	46·15	14·500	2·300	0·930
Oats	4·00	14·09	20·800	2·200	0·760
Pollen ..	3·115	20·80	12·307	2·288	0·647

Analysis No. 2.

Water evaporated at 12°	19·17
Wax and a little fat, soluble in ether	21·78
Sugar and extractive stuff, soluble in alcohol 82 %	2·60
A little protein and brownish colour stuff, soluble in dilute kali	16·29
Residue of pollen cuticle, hairs, &c., not dissolved	40·16
	100·00

Analysis No. 3.

Water	12·74
Ash	2·72
Albuminous	21·75
Sugar	26·20
Artificial nitrogenous organic substances	36·59
	100·00

Analysis No. 4,

Gave the following substances:—

1. Albumin.	6. Palmatin acid.	11. Hippur acid.
2. Pectin.	7. Stearin acid.	12. Cerinthin.
3. Glucose.	8. Olein acid.	13. Pollenin.
4. Butryc acid.	9. Glyceloryd.	14. Cellulose.
5. Myricin.	10. Anthosmin.	15. Erithalin.

Of the above, 6, 7, 8, 9, are fats; 5, hard wax; 10, 15, and perhaps 12, are evaporated from the bees' bodies, and give the peculiar smell to the hive, &c. 15 gives the yellow colour, and is such a strong colouring matter that one grain of it is sufficient to colour five ounces of alcohol; 10 gives the smell to the wax; 4 is found in old bread. 1, 2, 3, 6, 7, 8, 9, and possibly 11, are nutritious.—J. S. Wood.

ARTIFICIAL POLLEN—PREVENTING ANTS GETTING INTO HIVES.

I notice that several of your correspondents complain that they have been unable to make their bees take the artificial pollen when offered. If they adopt my plan I think they will get out of the difficulty. I get some artificial flowers made of paper, the ones I use are the same shape as the hyacinth, and these I stick into a flower-pot or any other convenient stand, and place them in a box about two feet square and four inches deep. I dust the paper flowers and the bottom of the box, in which has been previously placed some chips thickly covered over with pea-meal; the bees quickly surround the flowers and carry off the artificial pollen, and in a short time discover that in the box also. Or the flowers alone may be stuck about the garden in front of the hives, and the pollen dusted over them, when they have a very pretty effect, especially when the bees are busy round them.

I clipped the following from an old paper the other day. If true it will prove useful to bee-keepers as an easy method of keeping those little pests—ants—out of the hives:—'A chalk mark at least half an inch in breadth, around the upper edge of sugar buckets, barrels, &c., will not admit one ant into their interior. The same mark drawn on the edges of shelves will also prevent the approach of ants, as they are not able to crawl over the chalk.'—O. Poole.

A STANDARD FRAME.

By which I understand, frames that can be sold, exchanged, or otherwise used for circulation on account of their uniformity and size.

What are the advantages that will arise from the establishment of a standard frame? From my own experience I think that bee-keepers in general will be better served without such an Association standard frame, but let each adopt a private standard after considering the area that he considers most successful and convenient, in every sense of the word suitable for his locality.

One of the very few advantages of an Association standard frame would be interchange, which, in other words, may mean the increasing probability and possibility of infection by the sale and barter of such frames. This has been manifestly the result in Italy, and it has been the result in Denmark, as with myself and many friends owing to our Association having what is termed an intermediate hive from dome hives to frame hives for beginners. It was unfortunately the loan of such a frame with brood to replace the lost queen that introduced foul brood amongst my bees, and it was the purchase of a hive that such frames fitted that was the ruin of my neighbour's bees.

Those minute, death-dealing little germs, *micrococci*, have, to many a bee-keeper's cost and sorrow, been introduced by buying or lending such a frame, unconscious of the invisible agent of destruction that accompanied them. Foul brood in England is not now so wide-spread but that it can be stamped out; but introduce a standard frame and how great is the risk of infection increased. The innocent amateur purchases such, the seller being, perhaps, no wiser than the party purchasing. Or, as I have known cases where, owing to disease, an apiary has dwindled until the owner, at last disgusted with his bad success, sells all he can dispose of to realise a trifle, at the same time unconscious of the injury he is doing. It may be replied, 'Such can now be the case.' True, but will it not be increased and aided by a standard frame when so many would have the same size and be eager to purchase?

Standard frames would not tend to make practical bee-keepers in the future, for instead of as now cutting combs out of various sized frames, and so manipulating a little, this would be discarded for a wholesale purchase of frames with comb in, as an easy resort.

Such a frame would, to a serious extent, confine the inventive faculties and desire for improvement in hives, as is manifestly not the case now when we look at the most notable bee-keepers in all countries differing so much in their construction and size of frame.

Wherein does a great deal of the beauty and interest of bee-keeping lie? Is it not in carrying out new ideas in size of frame and hives amongst the other furniture?

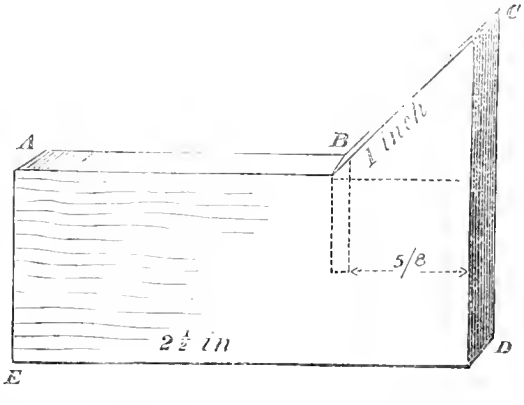
Having thus stated my objections, I cannot coincide with Mr. Desborough that the subject is of great importance further than keeping the contents of a hive equal to 1800 to 2000 cubic inches as a standard not to be reduced, of which there is no mention in his letter. Subjects of far greater importance can be named,—for example, the timely discussion of future exhibitions to avoid failures and unpleasantnesses; the harvesting and management of honey; its introduction to a larger extent into housekeeping; the disposition of material and ventilation of hives; autumn and spring management; management of swarms; British bee flora; and many infinitely more important and interesting subjects than discussing the size of a Standard Association frame. In conclusion, I may state as my last reason, that in this country frames vary in size from the Quinby area to half the area of Gallops, all equally satisfactory in the various hives and localities.—J. S. Wood, *Nyborg*.

WASPS' NESTS—QUEEN WASPS.

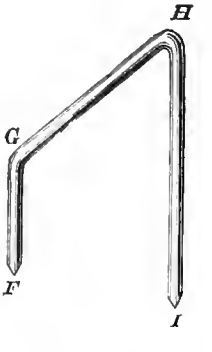
Now is the best time of the whole year to destroy these pests, and if bee-keepers were systematically to pursue and destroy the queens now it would save many thousands of wasps being bred in the ensuing season, and save no little anxiety. It is, perhaps, not generally known that a queen-wasp is not only the parent of the entire colony, but the sole founder, and builds the nest and feeds and tends the first batch of brood herself; so it is obvious that for every wasp destroyed at this season a colony will be extinguished or its formation prevented. With my own hand, last spring, I destroyed 223 queens in five weeks, which, together with a few killed by my boys, made up a total of 261 slain by members of my own household! It was noticed by a great many persons in this neighbourhood that not a tithe of the usual quantity of wasps appeared. In addition to the above I knew of enough queens destroyed by other persons (neighbours) to bring up the above total to 300! The power to destroy them lies in our own hands, and why not use it? During April and May they may be found hovering over the hedges on dewy mornings; and on one short hedge on a single morning I have killed over fifty, and that in less than an hour.—C. J. Smith, *Stroud, Glouc.*

SELF-PLACING ANGULAR DISTANCE GUIDE.

A B C D E is a block, full size, made of any hard wood, one inch thick. In the middle of the block, at the angle B, a hole, represented by the



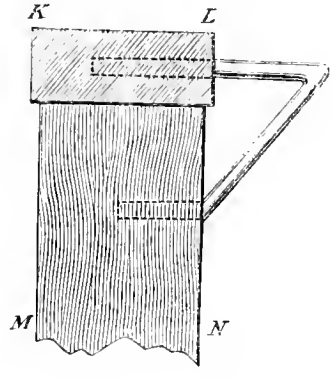
dotted lines, is made half-an-inch deep with a brad-awl of the same size as the wire to be used, which may be either strong copper bell-wire or of galvanized iron. The wire is thrust into the hole at B, bent, and hammered down over the angle C, and again bent towards D, and cut off the proper length.



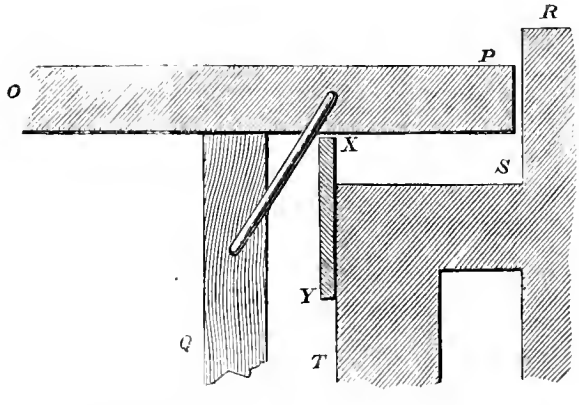
F G H I is the distance-guide thus produced.

K L M N represents a cross section of the frame, with the guide in its place. O P Q, a front view of the frame, showing the exact points where the legs

of the guide are inserted in the frame. By inclining it properly, it will touch the zinc runner X Y, and



keep the frame exactly a quarter of an inch from the hive-wall, R S T. This will allow of the frame ends being slightly shortened and rounded off, thus preventing their getting jammed in the rabbet, when



moved laterally. The nose of the guide being rounded, it is much less liable to catch under or over the top bar than the ordinary distance-tacks, and being inclined in two directions, it guides the frame easily into its place.—J. H., *Vale of York.*

FEEDING.

To my mind the greatest drawback to bee-keeping is the necessity for feeding, and during the last few years there has been an unusual demand for it. I have always used the wide-mouthed bottle and shovel, but never really liked it, as (perhaps because I am more clumsy than other people), in spite of all my care there is every now and then an upset, or an escape of syrup, and the resulting stickiness is very objectionable; moreover, I do not at all like the notion of cutting holes in my quilts, sometimes at one point and sometimes at another. To obviate these inconveniences I have just adopted the following plan, which somewhat resembles the needle-feeding arrangement, but is simpler, and, I think, as efficacious.

Pass a thin metal tube about three inches long and $\frac{1}{16}$ inch internal diameter, through the cork of a wide-mouthed bottle; fill the bottle with syrup, cork it up firmly, invert it, and pass the tube, which should project one or two inches through the carpet at any point you please, leading the way if necessary with a bradawl; the bottle stands firmly on the cork, and there is the great advantage that if upset there is no mess. Pieces of carpet can be heaped round the bottle as advised in last month's *Journal*, and it can be withdrawn at any time without spilling a drop. Besides this the bottles can be filled and corked in the house, and thus the smell of syrup in the apiary reduced to a minimum, and the inconvenience of being surrounded by bees anxious to immolate themselves in the sweets at the first opportunity avoided. It will require a little care to see that the syrup does not candy in the tube, but if properly made I do not think this will be the case; at least I have not found it so.

Holes can be bored at the sides of the tube to increase the supply, and plugged with beeswax to diminish it, the lower ones of course being stopped first.—H. Jenner Fust, Jun., *Gloucestershire.*

BEES ON VISITING TERMS.

Dr. Bevan, in his book called the *Honey Bee*, mentions a curious instance of bees being on friendly terms with those of another hive (p. 339). Two of my hives are now, I believe, acting in a similar manner. What they do when they enter one another's hives I have been unable to find out; but if robbing, it is mutual. Thinking that perhaps it may be of interest to your readers, I give you a short account of it.

In the latter end of February two of my hives (which I will call Nos. 1 and 8) began what I thought was robbing; but after watching them carefully I could not make out which was the aggressor, so narrowed both entrances, so that only one bee could go in at a time; and that having no effect I stopped up No. 1 in the evening. The next morning bees from No. 8 kept flying to No. 1, but finding it stopped, returned to their own hive. In the evening, when No. 8 was quiet, I stopped them up and released No. 1, when to my surprise the bees from No. 1 flew to No. 8, trying to obtain an entrance.

I gave them a week of this treatment, that is, stopping them up on alternate evenings, hoping to keep them to their own hives; but on both hives being left open they recommenced the visiting within a couple of days as freely as ever. I then gave them another ten days of the same treatment with no better result; and, finally, I gave No. 8 a good dose of mint, and shut them up for a day: but it was of no use, so now they must go their own wicked way. No. 8 is light, but has brood, and seemingly doing well. No. 1 I have not turned up lately on account of the weather, but I know that it had a queen last November, and it was the first to set to work this spring. Both hives take in plenty of pollen. They are in straw skeps and are being fed through a hole cut in the top, and they stand about twenty-four feet apart, with six other hives between them. I have watched them carefully, I may say, every day, but at no time have I seen anything like fighting. — E. H. Oldham, *Nankin Villa, East Barnet, Herts.*

HOPES!

Just a few lines, *currente calamo*, to state how affairs are going in my apiary at this fag end of winter. Having used the 'quilt' on the whole of my bar-frame hives, I can reiterate with increased confidence what I have before stated, viz., that in our variable climate it is 'the one thing needful.'

As a winter protection it answers to admiration. It is simplicity itself: and now we find it so useful —I go a step further, and say indispensable—we wonder why we had not thought of it before, and what we should do without it. But we latter-day bee-keepers, we in our generation,

> 'Heirs of all the ages, in the foremost files of time,'

(as the Laureate has it in his spirit-stirring 'Locksley Hall'), are cognizant of many things undreamt of in our fathers' philosophy. Knowledge is increased; thanks to the simple truths disseminated by this and other kindred publications, each year as it passes leaves us on higher ground. And still comes the cry, 'Excelsior! Onward! The heights are yet unscaled.'

Again, I say, thanks to the 'quilt' (my grateful respect for which precludes my using the derogatory phrase, 'pile of marine stores'), there is no sign of mouldiness or damp in my hives, and the bees are strong and vigorous, which is very gratifying indeed, considering the prevailing humidity of the air. Undoubtedly a dry, cold atmosphere is preferable in an English winter. Of late, we have experienced all sorts of weather, frost, mild, rain, hail, or, as a Yankee humorist, with characteristic drollery, has it,—

> 'First it hailed, then it blew,
> Then it friz, then it snew;
> Then there came a shower of rain,
> Then it friz, and snew again.'

This stanza aptly illustrates the usual style of weather of our new style of winters.

As I write a brief interval of sunshine again rouses to activity the busy tenants of my apiary; and no wonder, as they have been weatherbound for the last fortnight or so. They seem already to revel in joyous anticipation of the good time coming. But softly! cold winds and frost will more than once nip bud and blossom ere plump supers are again the order of the day!—Alfred Rusbridge, *The Apiary, Sidlesham, Chichester.*

PASTURAGE FOR BEES.

As the time has now quite arrived for sowing the seed of most of the bee plants, I will give you a short account of some of them.

Borage (*Borago officinalis*). This plant is an annual and grows about eighteen inches high. It has truly been called the king of bee-flowers. Its flower is a brilliant blue, and it blooms from June to November, or until the frosts cut it down, provided the seed is sown each month from March to July. It yields large quantities of honey of a peculiarly delicate flavour, even yielding honey in cold and showery weather when other plants do not; owing to the flowers being pendulous the honey is not washed away with the rain, and the bees work upon it from morning to night all weathers, as the petals of the flower act as an umbrella over the bee whilst collecting the honey.

This plant is also used in making a good claret cup. The large leaves and tender stalks dipped in butter and fried make an excellent and savoury dish. The brilliant blue flowers are a garnish for salads; the young leaves boiled are a good substitute for spinach, or if dressed with hot butter and grated cheese make an excellent and new vegetable. The plant contains a certain amount of saltpetre, as may be proved by burning a dried leaf. For this reason it is used with great benefit for the relief of sore throats. The root is rich in gum, and if boiled yields a mucilaginous emulsion, excellent for irritations of the throat and chest. Very violent attacks of toothache, where the nerve has taken cold, are often cured by holding a portion of the leaves, previously boiled in milk, and applied warm in the mouth, against the affected tooth. No garden should be without borage growing in it, and it will pay well to set large patches of ground with this seed for bee forage. The seed should be sown broadcast from March to July. There are about 1800 seeds in one ounce.

Mignonette (*Reseda odorata*). Too much cannot be said of the value of this plant for bees. It blooms from June until the autumnal frost. It is a half hardy annual and grows about ten inches high. It should be sown in March or April in drills or broadcast thinly, and covered lightly with soil. This plant yields large quantities of honey of a beautiful white colour and very fine flavour. The bees work upon it from morning to night. No garden should be without mignonette, as a small patch of it will perfume the air for a considerable distance; and it will pay well to set large patches with this seed for bee pasturage. In addition to having the air so delightfully perfumed, it is said *Reseda odorata eximia* yields more honey than the common variety. There are about 42,000 seeds in one ounce.

Phacelia tanacetifolia, or tansy-leaved phacelia, is an excellent bee plant. It is a tolerably hardy annual and grows about eighteen inches high; it should be sown very thinly in March or April and continues in bloom from June to October. It yields a quantity of beautiful honey, but it is not equal to borage and mignonette. It should be grown in all flower-gardens for its fern-like elegant foliage and fascicled spike of violet flowers. Dzierzon speaks highly of another species of this plant, the *Phacelia congesta*. It is an annual of rapid growth flowering speedily even when sown in July on a pea patch, after the crop of peas has been harvested. It is a large, showy bush, with leaves resembling those of the cypress, and blue flowers not unlike those of the viper's bugloss (*Echium vulgare*), the famous Russian bee plant cultivated for bee pasturage by Propokovitsch and others. It continues to bloom till late in October, and is visited by bees after the frost has cut off all other sources of supply. There are about 15,000 seeds in one ounce.

Poppies (*Papaver caryophylloides*). The single French or carnation poppy if sown from March to July affords the bees quantities of pollen until the frosts cut it down. I have seen eight bees in one poppy in October, so eager were the bees for the pollen to supply their young brood with bee-pap.

Mellilotus leucantha and *Esparcette* or *Sainfoin*, also *Canterbury Bells*, should be sown at once for flowering next year.—W. Carr, *Newton Heath Apiary, nr. Manchester.*

(*To be continued.*)

PRESERVING THE BALANCE.

How many years may a stock of bees be allowed to remain in a skep without danger of the cells being overladen with pollen, to the exclusion of brood, and the consequent prevention of swarms?—*Miller's Green, Wirksworth.*

Reply.—The condition of affairs, here suggested, may be brought about in any one year, if the balance of the honey and pollen stores be destroyed in the autumn, as it often is, by the taking away of the honey, without making a corresponding return.

A stock of bees, having swarmed, will commence storing their winter supplies, and ordinarily will collect proportionate quantities of honey and pollen, and if left alone, would, in the spring, start fairly, and consume regular quantities of both in their early efforts to increase their numerical strength. And as in this process very much pollen would be consumed (for pollen enters largely into the composition of baby bee food) before any could be obtained from out of doors, there would be little danger of a detrimental accumulation of it within the hive. Ignorant of these simple facts, our forefathers thought it right to remove in autumn all the honey they possibly could, and provided the stock remained *heavy enough*, the necessity for feeding to induce the bees to consume their (then) superabundance of pollen, never entered their heads. And as a consequence, it was soon found that the depriving system did not pay, for often stocks, which had done well, and had yielded large supers during the summer and autumn, proved useless in ensuing years, through having been unable in early spring (from comparative scarcity of honey, after having been deprived) to commence breeding, and while increasing their number, diminish their store of pollen. It, therefore, follows, that such stocks cannot commence their breeding, except in a trifling degree, until the spring blossoms appear, and then the presence of the superabundant pollen within the hive makes itself felt. The bees gather daily as much as is needed for daily use, and the old store remains in the cells, and prevents the deposition of eggs, and the production of brood and bees, and such hives *ne'er do well.*

The remedy is late and early stimulative feeding, late in autumn, and early in spring; and provided the bees be healthy, the combs will remain serviceable for many years.—Ed.

THE 'KEEP' OF A BEE.

It seems to be now proved beyond the reach of further controversy that bees do eat fruit under certain circumstances, and that they will on occasion steal sugar from a grocer's shop as unblushingly as those hardened sinners the wasps. But it has not been proved that they prefer fruit to honeydew or molasses to natural nectar. In many parts of the country where it was once profitable to keep bees it cannot be so any longer. Improved farming has almost banished many of the weeds from which the bees drew their supplies. The closely-clipped hedges of civilisation do not allow of the free growth of such creepers as honeysuckle and clematis. They rob us of much hawthorn and elder blossom. Then, too, the large fields which are the necessary result of steam cultivation are against the bees. There may be fine crops of clover, beans, buckwheat, but at distances too great to be remunerative. Long journeys for food mean of course little honey stored. Whether the Ligurian bees, now so largely introduced into our apiaries, are more addicted to helping themselves to fruit than our native species we do not know; but one thing is certain, they will find it disagree with them. As, however, they are mild in temper, they are easily removed from one place to another, which is the true secret of bee-culture. On the Nile there are bee-barges which travel at night, stopping in the daytime where there is good pasturage; and Pliny speaks of the same practice, and tells how they knew by the depth to which the boats sunk in the water when the hives were sufficiently full. With reference to garden bees, it used to be the custom to grow certain plants for their use. Borage, which lasts from June to November, is an invaluable protection to the fruit crop. There are other plants, such as lavender, mignonette, and common fuchsia, which costs little or no trouble to cultivate, and which are certainly no disfigurement to a garden, while they give a pleasant perfume to the air not to be had from bedding-out plants. Bright plumaged birds do not sing, and a great proportion of the vividly-coloured flowers now the fashion have no scent and little honey. All bulbous plants are of course an exception to this rule, as they are both sweet and good for food. Bees should not be kept in places where there is not either abundant wild pasturage for them or a succession of garden plants cultivated for their use. It is dishonest to have honey at the expense of other people, in the same way that it is dishonest to have pigeon-pie when the pigeons are fed on a neighbouring farmer's seed wheat. It is, however, quite possible to move the bees from place to place—to a cowslip field, a crop of beans, or a heather moor. If people keep bees for profit, they should provide them with food which they will prefer to fruit.—*The Saturday Review.*

[We cannot agree with the writer, that bees eat fruit under any circumstances, although they will in times of scarcity suck up the *juices* of ripe fruit. As well might they be charged with eating the filth to be found in a pig-sty, because they occasionally abstract a portion of the saline liquid from the mess found on its floor.—Ed.]

ECHOES FROM THE HIVES.

Italy, Milan, 15th March, 1876.—'Here the new season has commenced under very favourable auspices. The "colza"—a plant largely cultivated by bee-keepers—is already in blossom, and the bees are making a harvest from it. I have 60 stocks. My anticipations are to obtain from them about 40 swarms and about 30 lbs. of honey each on an average.

'Honey, as an article of food, is becoming very popular. At the last general shows a large variety of articles made of or containing honey were numerous. A novelty was a pot of pomatum made of propolis. It was stated that as a medicament against hemorrhoidal affections, this pomatum has proved, after careful experiments, very commendable.'—C. A. V. di S.

Nyborg.—'It has been a wretched winter in Denmark for bees, and I doubt many valuable stocks have gone "where the woodbine twineth," as the Americans say when their bees die. I cannot complain, as I prepared well, and have therefore lost less than five per cent of my stocks; I am now feeding briskly. Young bees out and plenty on the way.'—J. S. Wood.

Dundee.—'This is dreadful weather. My bees have not had a "fly" for a fortnight, till to-day when a few of them were out.

'If you can give in next *Journal* a few plain directions for detecting foul brood in its *incipient stage* I would be obliged to you. I examined a hive a fortnight ago, which I thought had a bad smell, and found in the one comb I removed, a considerable number, about 20, of isolated cells, the lids all perforated by a small hole, and in each a dead larva. Some were still white, others reddish-brown, but still retaining the perfect shape of the grub. The body, however, contained only a mass of putrid matter. Could it be chilled brood? If it is foul brood, would it be advisable to cut out the affected parts, and try whether the bees will master it?* A neighbour has lost the combs of three stocks by this disease since autumn. The last was found a few days ago with all the bees dead. He buried the combs, honey and all. The bees of the first two rallied in clean hives, and have been fed up to fair stocks.

'What do you think of a swarm in the first week of March? The following notice appeared in the *Dundee Advertiser* a fortnight ago, and I wrote to the owner for information: "Not many days ago, a heavy stock hive in the Ballochbuie forest, Braemar, the property of Mr. James Bowman, one of Her Majesty's gamekeepers, threw off a large top swarm." He says it is a fact—that the stock was an 1874 top swarm, eked that year, and again in 1875, so that it did not swarm then, though crowded with bees. The swarm has perished since, but Mr. Bowman says the old stock is still strong. Of course it too will perish—perhaps having a drone-laying queen for a while—unless it be a case of two queens having wintered in the hive. He promises to let me know what comes of the old stock. 'Not being a practical hand,' he says, he paid little attention to the untimely swarm.'—W. RAITT.

Londonderry.—'Having just come to live in the country, I have for the first time in my life the opportunity of indulging my long earnest wish to keep bees. * * *

'The unit on which I wish to base my system is a bar-frame of a fixed size, which will fit into every hive of every kind that I may get or make.

'Then I want a roomy hive that will hold a large population, being satisfied that stocks can be enlarged by feeding them and giving them room.'

Staines, Middlesex.—'What weather we have had for bees! I have never been able to join my weak hives till to-day, and have had the greatest difficulty in keeping them alive. Obliged to take one into a warm room in the dark and keep them there for days, and they actually had begun to breed, stimulated by the warmth and the feeding, I suppose. There will not be many April swarms this year,—nor May either, I suspect.'

Copenhagen.—'The hazel bushes are now putting out their blossoms, and the snowdrop is in flower, while the crocus is just breaking the ground. The weather ranges from good to execrable nearly every day; sunshine and calm, snow and frost, rain and storm, in fewer days! The bees at intervals are busy fetching water and bringing out their dead, and have hatched out young bees in the strong hives. I am longing to open, but dare not do so, until we get some days of settled fine weather, and then I shall hang up my bottles of syrup in the garden, and put out the flour dish *pro bono publico*. I don't care even if the public is not *all* mine. I know that my portion of it must get the lion's share, being the first to discover and occupy, and when a square inch is full of bees the strangers who sit on their backs will not make me much poorer!

'Trusting that all is going well, and that you may get swarms of B. and S. (not brandy and sodas), but bees and subscribers!—J. R. C.

16 *Whitehall Place.*—'I opened up the hive a day or two back, to which I added a Ligurian queen last autumn, and she has been breeding in a most satisfactory manner, as there is scarcely a black bee amongst the whole stock, and the hive is very strong in bees, thanks to stimulative feeding last autumn.'—W. F.

Hitchin.—'All stocks wintered in wooden hives, with quilt above, are perfectly healthy. I quite agree with your remarks concerning the mortality of bees in snowy weather. Great numbers are chilled on treacherous days, but I think that the weakest and oldest are thus taken from the hives to the benefit of the survivors.'—O. H. P.

Droitwich.—'Great complaints about here; bees are either dead or in such condition as to give poor hopes of their recovery. Mine, I am glad to say, are well, though not so strong as I could wish. I have had one catastrophe. Some bullocks got loose and capsized four straw skeps during the night of Wednesday last, and I am doubtful as to their recovery. One lot very strong, others fairly strong, but in want of food. The accident happened about 4 a.m., and I was not aware of it till about 11 a.m.; in the meantime the hives were lying on the ground on their sides exposed to the east wind.'—W.

Please accept my thanks for your letter of instructions. They shall be followed out exactly. I am arranging to leave here on Friday, the 31st instant, and hope to reach Ellesmere at the latest by noon on Saturday, April 1st. The weather is now very bad for bees here. It will make great havoc among many of 'the Old Stylers'' stocks. I hope the place I am about to go to will prove a good district. It has been heath no great while ago, but most of the ground has been reclaimed from the waste, and is cultivated, though there are still pieces lying waste. I have the quilt on my one stock, and the bees are doing very well. I hope soon to hear the sound of 'Big Drum' again.—J. L.

Somerset.—'The old-fashioned bee-keepers of this county have met with sad losses this season, and from all quarters I hear reports of depopulated skeps. Now is the time for making a start with the new and improved methods, and showing the advantages thereof with some chance of really producing an impression and securing a trial.

'I hope the honorary secretaries and the various Apiarian Societies will soon communicate with the managers of the Horticultural Associations in their respective districts, urging them to offer prizes for the encouragement of bee-keeping at the shows during the coming summer, and that bee-keepers generally will, without delay, prepare for local exhibitions.'

* The incipient stages of foul brood have been well described by our correspondent in the above letter, and dead larvæ, discoloration, putrefaction, and pinholes in sealed cells, tell their own tale. The combs become dotted with sealed cells, at first isolated, which do not hatch, and as they increase in numbers those first affected become corrupt, and the seal sinks inward and becomes perforated. The best *test* as to the presence of the disease is the increase or diminution of the number of foul cells; foul brood is *active*, and will continue to slay until it is arrested; chilled brood would be thrown out by the bees. Please to refer to late contributions of Mr. Wood on the subject.—ED.

Queries and Replies.

QUERY No. 149.—I have been much struck with your account of 'A Method of Supering,' in pages 184, Feb. number of the *Journal*, and wish to try it this season. I quite understand your description, with one exception. Where is the mouth-piece of the inverted hive for the ingress and egress of the bees? Putting an adapting board and super on the straw skeps would entirely close the hive? Is the mouth-piece cut into the original crown of the hive, so that the bees can go in and out from the floor-board as usual? Please

answer in your next number 'Queries and Replies.' The weather here is anything but favourable for bees; constant snow; hardly dare examine the state of the hives, it is so cold.—*Bardney, Lincoln*, Feb. 11, 1876.

Reply to No. 149.—In Mr. Desborough's hive the bees gained admittance through the hole in the crown, which, when the hive was inverted, was available through a groove in the floor-board. Mr. Kirsten has shown on page 210 the method adopted in Le Gatinais, where it would appear the entrances are usually cut in the rims of the hives, and when an inverted one is surrounded by another they are kept separate by the perforated plate, which confines the queen to the lower one, but leaves both entrances available to the bees and drones. We should prefer an entrance from the floor-board proper, as it would be so much more convenient for the bees to throw out their dead and their lumber.—Ed.

Query No. 150.—Queen-raising—Sedez Boxes. On page 139 of Mr. Hunter's *Manual of Bee-keeping* are described the Sedez boxes for queen-raising, but it does not say how to use them. Is it all brood-comb that is put into them with the queen-cell, or are there honey-cells put with them? After the queen is hatched, how does she become fertilized, as she has no place to leave her box? An answer to the above will be thankfully received.—W. H. J.

Reply to No. 150.—A Sedez box is supposed to be furnished with a piece of comb containing hatching brood and honey, it should either have a ripe queen-cell on it, or one must be grafted upon it. Some bees from the hive from which it was taken are then added, the glass sides closed, due regard being had to ventilation, and the whole placed within another hive of bees, to be kept warm until the queen has hatched out. The Sedez box can then be treated as a nucleus, and placed so that the young queen can go forth to mate with a drone, or the young queen may be added to a queenless stock, or placed at the head of an artificial swarm.—Ed.

Query, No. 151.—J. L. wishes to know how many swarms it is advisable to take from a hive kept for supering before transferring the bees to a weaker stock. —*March 15th*, 1876.

Reply to No. 151.—The meaning of this question is somewhat obscure, as we always try to prevent swarming from hives kept for supering; and it is not usual to transfer strong stocks to weaker ones. —Ed.

NOTICES TO CORRESPONDENTS & INQUIRERS.

J. S., *Wimbledon.*—The transfer ought not to take place until twenty-one days after the bees have swarmed. You will find the hive named an easy one to transfer into, as the frames are shallow, and a comb will fill each frame, and to spare; in which case the upper part, containing honey, may be cut off and used, or the honey may be extracted from it, and the comb fitted to the frames as guides. The proposed method of feeding is correct; but pray don't forget the artificial pollen.

Round and Flat Tops.—The information given does not contain the history of the flat-topped hive. You say the swarm that filled the round one came from the flat one in 1871, but that does not inform us of the age of the latter. Probably its combs are too old, or too much filled with pollen, to allow the queen to exert her full power of ovipositing.

Extractors.—Mr. Starling has written to us declining the manufacture of Honey Extractors, as not being sufficiently remunerative. This notice may save useless trouble in writing on the subject.

New York.—We have received an unsealed envelope, with the New York (U.S.) postmark, with no contents or outside means of identity. Date, Feb. 20, 1876.

Rochester.—Index for Vol. II. can be had from this office, price *3d.* Vol. I. is out of print, and realises fabulous prices, scarcely a single number being offered for less than a shilling, and for a complete volume a guinea is demanded.

Vale of York.—We have never tried '*fly wire*' (wire gauze) under the quilt to prevent propolization, having an impression that it would be rather an aggravation than otherwise, from the difficulty of causing it to lie flat, and from its being so full of small holes, which the bees delight in filling with propolis.

Mr. Freeman's plan of distance-guides is to cut a notch in the rabbet which shall be under the centre of the end of each top rail. A pin driven through the rail at each end, and allowed to project one-sixteenth of an inch, would then lie comfortably in the notch; and the frame, if lifted a sixteenth, would permit of its lateral movement. The slotted tin is a gauge to drive the pins with.

M. J., *near Chepstow.*—The prices of bees will be found in the advertising columns. As you are unable to discover a queen, we do not see how you can well effect the exchange desired. It will be safer and better to purchase a small swarm with pure queen at its head, and having driven all the bees from one of your best black stocks, give the combs to the new arrivals, who will hatch out the then existing brood; and afterwards all the future bees will be pure Ligurians. The black bees will form an artificial swarm.

H. F. Brede.—It is highly dangerous to send *stocks* of bees by rail in spring, when the combs contain considerable quantities of honey, pollen, and brood, besides having large populations that will cause great increase of heat, and consequent softening of the combs. We can give no improved directions for preparing them; every comb should be secured in its frame by tapes passed round it, or by splints of wood on both tides tied at their ends. The frames should be rigidly fixed in the hive, which should travel bottom upwards upon a bed of soft material to ease the jolts. It is almost better not to label it 'with care,' or 'fragile,' as railway-porters delight in setting such things down with a thump.

F. W., *Midland, Dorset.*—The quilt may be composed of any porous hard material, the harder the better, provided it be not metallic. We have hitherto used old Brussels carpet, with the under side next to the frame, and with three or four thicknesses of felt or carpet upon it, but have lately been informed that the material of which bed-ticks are made is excellent under the carpet, as it is hard and thin, and when laid upon the frames is not likely to crush bees, and it is so easily washed when dirty or coated with propolis. Bean-meal will doubtless be as acceptable to the bees as pea-meal. Try it. They will not take it if it has not the necessary qualities.

Spelling Bee.—To keep pace with the time we have had a Spelling-Bee, but have been somewhat surprised at the number of competitors who could not spell *Remittance*, an easy word meaning Post-office Order; some few spelt it R-e-p-u-d-i-a-t-i-o-n, a word we never thought of hearing from the lips of English gentlemen; to such the word *Honour* must be a dreadful puzzler.

Covers for Binding the British Bee Journal, *may be had, price* 1*s.*, *at the Office, Hanwell, W.*

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AND

BEE-KEEPER'S ADVISER.

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CHARLES NASH ABBOTT,
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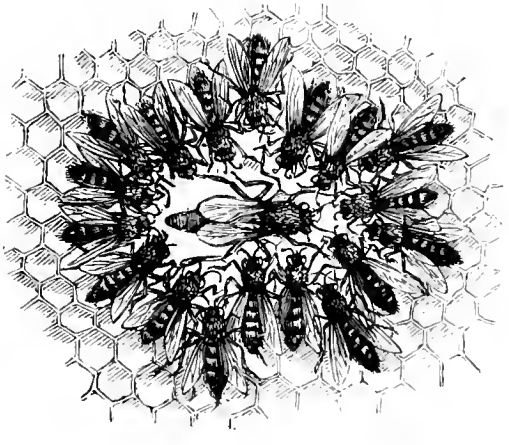

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INDEX.

Abbott, C. N., his manipulation of bees at Weston-super-Mare, Glasgow, Dundee, Sherborne, &c., 78, 104, 105; his moveable comb-hive, 97; his improved cottager's hive, 98; his bee-feeder, 99, 119, 120; his bee-quieter, *ib.*; his sectional supers, *ib.*; his extractor (the Little Wonder), 100; his appliance for obtaining wax from old combs, *ib.*; his honey strainer and wax extractor, 120, 212; his school of apiculture, 135, 144; description of his Standard hive, 154–156; his proposed exhibition tent, 154, 161, 181; his apiary at Southall, 135, 144, 221
Aberdeenshire, bees in, 59; season in, 129
Adulterated honey, 162
Alexandra Palace Bee and Honey Show, 41, 77, 97-100; exhibits at, 117, 118
Alexandra hive. *See* Hooker.
Alexandra super, 173
Alyssum, 217
America, ideas from, 11, 12; prospects of, 62
American cousins, our, 101
Analysis required of food in royal and common cells, 129
Ants' nests, 185
Apiarian disaster, 13; exhibitions, 56, 78, 97, 104, 105; memoranda, 205
Apiary action, 219; model, 231
Apicultural exhibitions, 78, 104, 105, 202
Apiculture, School of, Southall, 135, 144
April, 215
Arbroath, bees in, 59
Argyllshire, season in, 181
Aristotle, 10, 178, 200
Artificial honey supers, 86
Artificial pollen, 13, 14, 16, 44, 190; in autumn, 90, 91, 145, 148
Artificial pollen-feeder, 191, 223
Artificial swarms, time for, 17; swarming, 5, 17, 213
Aston's bee-trap, 78
August, weather in, 73
Autumn, pollen-feeding in, 90, 145, 148; prospects, 45
Awards, list of, 101
Ayrshire mode of packing supers, 54
Bar arrangement, 132
Bar-frame hives, coverings for, 70
Bar-frame apiaries, 97
Barley-sugar, 96, 131; receipt for, 16
Bee-books, 228
Bee-bread. *See* Pollen.
Bee culture, Count Salicetо's ideas on, 149; views respecting, 159, 160
Bee-flowers, 50, 126, 127, 164, 165, 174, 175, 217, 223
Beehive, Mysteries of the. *See* Mysteries.
Bee-hives, experiences with, 146; in unprotected places, 212
Bee-keepers' Receipt book, 27
Bee-keeping, lectures on, 30, 65, 162, 173, 217; for the million, 56; hint to those interested in, 63; experiences in, 145, 146; in Anglo-Saxon times, 166; golden rules for, 194; in Germany, 198; in India, 212, 228
Bee-keepers' conversaziones, 169
Bee-houses, 144, 145
Bee losses, 14, 15
Bee-manipulation at Dawlish, 56, 57; at Sherborne, Glasgow, Dundee, &c., 78, 104, 105; at the Alexandra Palace, 100
Bee-pests, traps for, 153
Bee poison, effects of, 49
Bee prospects, 44
Bee-quieter, 99, 212
Bee-sheds, 185
Bee-stings, 32, 210, remedies for, 7, 49, 57
Bee-trap, 100; five-pin, 145
Bees, honey laden and pollen laden, 2; feeding, 12, 53; in trees, 29, 128; abnormal, 33; generations of, in a year, 40; law on, 51, 59, 79, 80, 112, 113; their knowledge of the weather, 61, 87; eggs of, their vitality, 63; their preparation for princesses when about to swarm, 73; conduct towards queens and princesses, 75 *n*; extent of their flight, 89, 90, 149, 169, 181; do they sleep? 134; fraternizing, 147; in a church tower, 150; duration of their lives, 184; possess a sense equivalent to smell, 185; transporting, *ib.*; and holly berries, 194, 195; treatment of, in 1749, 209; pasturage for, 223; time they fast between meals, 225; moving, 231
Bees and honey, introduction or early history of, 10, 166, 167, 180, 200, 217
Bee tree, a, 128
Bee and the grasshopper, 13
Bees, lectures on, 7, 30, 65, 162, 173
Bees-wax at the Alexandra Palace Show, 100
Beeswing's Advice to Bee-keepers, 27
Bennett *v.* Pointon, 80
Bevan Fox, S., lecture by, 7, 8
Blairgowrie District Bee-keepers' Society, 193
Bligh, Hon. and Rev. W., 100
Bogenstulper, 200
Bohemia, 88
Bonner, Mr., and earthenware hives, 166, 175, 203
Bottle-feeder, the tin, 119
Box-trees, 223
Brandenburg and Brunswick, bee-keeping in, 83
British Bee-keepers' Association, and the standard frame, 11; subscriptions to, 26; meetings of, 26, 42, 43, 73, 121, 137, 217; schedule of prizes and prize fund, 41, 93, 94
Brood, chilling, danger of, 134
Brood-nest, 22, 23
Broom, 223
Brown paper as a smoker, 205
Butler, Rev. C., his *Feminine Monarchie*, 159, 179; his remarks on driving and feeding, *ib.*; his teachings, 178–180
Butterfly, African, with sting, 162
Caledonian Apiarian Society, 35, 43, 102, 103, 218
Carlisle, bees at the proposed International Horticultural Exhibition at, 159
Carr-Stewarton hive, 182
Cells, their structure and shape, 2–4; construction of, 20; sizes of, 21; purposes of, 21, 22; elongation of, 22
Challenge, a, 127
Cheshire, Mr., his method of dividing frames for nuclei, 24; his wax-foundations, 100
Chinese oil-radish a bee plant, 198, 217
Clarke, Rev. W. S., lecture by, 173
Closing entrances, 153
Clover, 127
Clustering, cause of bees, 71
Combs, building, 17, 22, 118, 119; its exhaustive nature, 74; drone and worker, 22; filled with honey, 73; their non-conducting qualities, 91; straightening, 212; age of, 212; mouldy, 231
Comb-foundations, 28, 47, 212
Conservatory, hive in a, 230
Cottage hive, 50
Cottage bar-frame hives, 89
Cottager, what a, can do, 46
Cottager's feeder, a new, 181
Cowan, Mr. his hive on the Giotto principle, 98; his exhibits of honey, 98, 99, 100; his extractors, 99, 100; his system, 169
Crown boards, 134, 185, 187
Cyprian bees, 12
Danyell, Captain, his Giotto hive, 98
Darwin, Mr., on holly berries and bees, 194, 195
Dawlish, Flower Show, bee operations at, 56, 57
Dead bees, removal of, 153
December, bee operations in, 135, 136; mild weather of, 153
Decoy hives, 58, 59
De Gelieu's *Bee Preserver*, 57
Desborough, Mr. his lecture on bee-keeping, 30, 65; his plan of inverting a straw skep, 89; letter by, on apicultural exhibitions, 202, 203; his receipt for making mead, 224
Denmark allotment hive, 100
Devon and Exeter Bee-keepers' Association, 7, 8, 17, 43, 106, 193
Difficulties, what to do under, 186, 187
Donkey stung to death by Ligurians, 75–77
Dorset Bee-keepers' Association, 161, 219
Dorsetshire supers and useful bees, 121
Double hives, objections to, 116
Driving in olden times, 148
Droitwich Bee-keepers' Association, 27
Drones, 5, 8, 51, 126, 192; breeding of, how controlled, 51; destruction of, 64; eat honey, 151; their value in the hive, 126, 151; early, 226
Drone-comb, 21, 119; excision of, 91
Dummies, moveable, 144
Dunning, Perthshire, bee-keeping in, 184
Dysentery, 135, 136
Dzierzon's theory respecting the sexes of eggs, 191, 192
Early breeding, 201
Earthenware hives, 166, 175, 203
Earwigs, destruction of, 153
Easily understood, 48
East of Scotland Bee-keepers' Society, 9, 26, 27, 36, 103, 174, 193, 218
Echoes from the Hives, 48, 89, 131, 157, 170, 183, 211, 229
Entrances, reduction of, 117; size of, 134
Eggs, time taken in coming to maturity, 23; sexes of, 222
Egyptian hives, 116, 122
Egyptian method of fixing guide-combs, 41
Evans, Dr. his poem, *The Bees*, 77, 101; Book I., 107-110; preface and notes to Book I., 124–128. Book II., 138–142, 162–164. Notes to Book II., 164, 165, 174–176; separate publication of, 159; information respecting, 177
Exhibition tent, 122, 153, 154, 166, 181, 213
Experience, 29, 45, 62, 85, 147

Experts, certification of, 121, 228
Extractors, their usefulness, 17; at the Alexandra Palace, 129. *See* Little Wonder
Fairlawn apiary, 221
February, 171
Feeder, 133; cottager's, 181
Feeders, caution as to the use of, 144, 205
Feeding bees, rule for, 17; continuous, 96, 97, 153
Feeding-stages, metal, 187
Fertile workers, 51, 88; how to get rid of, 120
Fertilization of queens, 40; controlling, 213
Finzell's sugar, 97, 205
Five-pin trap, improved, 113
Fixing bars in straw hive, 49
Floor-board, clearing, 95
Flowing with honey, 59, 60
Foreign intelligence, 31, 48, 88, 131, 229
Foul-brood, 96, 144, 145; Hilbert's cure for, 83; Signor Grassi on, 113
Frame, the standard, 11
Frames, their size, according to localities, 11; in America, 12; interchange of, 14
Frame-ends, 29
Frame quilt and mattress, non-crushing, 146
France, 48, 88, 131, 229
Freeman, Matthew, prizes gained by, 46
Fumigating bees, 90, 91
Furze as a honey plant, 197, 223
George I. of Greece, 174
German apiary, a couple of hours in, 80–83; hives in, 81, 82; echoes from, 219
Girdwoyn's *Anatomy and Physiology of the Bee*, 173, 231
Giotto hive, 98, 151
Glass hives, 71
Glass supers, 86
Glucose, 208
Gooseberries, 174
Graham, Miss Stirling, a veteran bee-keeper, 57
Grassi, Signor, on the cure of foul brood, 113
Gravenhorst on bee-keeping in Germany, 198, 199, 221
Griffin, W. N., his hive, 98, 157, 158, 204
Grocers' Journal, The, 120
Hale, Mr., his hives, 85
Hanover, bee-keeping in, 83, 199
Hanwell parish bees, 55
Hartlib hive, size of frame of, 170
Heat in hives in winter, 172
Heather honey, 90, 148
Hint for taking honey, 64
Hilbert, M., cure for foul brood, 113; a visit to his apiary, 197, 198; his paper on milk diet for bees, 219
Hives, fitted with guides, 41; ventilation of, 55; strange inmates of, 64; heat in, a cause of swarming, 74; want of room in, 89; opening, 116; badly managed, 132; protection of, 145; cheap, 180, 181; temperature of, 187; preparation of, 215; weight of, 228
Holly berries, 194, 223
Honey, notices of, in the Bible, 10; nature of, 16; super honey harvest, 76, 113; home and foreign, consumption of, 77; market, 84, 85, 120; heather, 90, 148; price of, 68, 91; at the Alexandra Palace, 100; sale of, 113, 114; draining, 133; single specimen bar of, 132; glut of, 170; consumption of, by bees during winter, 205; adulteration of, 208
Honey-combs, unsealing, 133
Honey sac, the, 1
Honey slinger, 160
Honey strainer, 120, 212
Hooker, Mr., Alexandra hive, 98, 156, 157; hive on the collateral principle, 98; sectional supers, 99; frame-making machine, 100
House-flannel as a quilt, 96
Huber, 209; Mr. Pettigrew on, 196
Hunter, Mr., his exhibits, 100
Huntly, bee show at, 104
Hybridized queens, 185
Indian bee-keeping, 211, 228
Identifying bees, 70
Inverted hives, 89, 145
Ireland, bees in, 13
Is it right? 183
Italian weather, 15
Italy, 31, 48, 88
Ivy, bees in the, 167, 168
January, 153; weather in, 171
Jarring hives, offensive to bees, 90
Jamaica, bees in, 27
Journal of Horticulture, 14 17, 44, 61, 86, 196, 216
Judges, and judging, at the Alexandra Palace Show, 101, 129
June, 18; weather in, 37, 53
July, 37, 38; weather in, 53
Kœnig, his calculation of the angle of a bee's cell, 227
Lady bee-keeper's difficulties, 61, 62
Lanarkshire, season in, 13, 224
Lanarkshire hive, 130, 225
Lanarkshire Bee-keeper *v.* Mr. Pettigrew, 168, 169, 182, 183, 195–197
Langstroth hives, 116
Larvæ, transformation of worker into queens, 73, 74
Laurustinus, a bee-plant, 33, 134, 223
Leaflets for the Million, 17, 49, 50, 56, 61, 62, 73, 91
Lectures, 133, 162, 175, 217, 228
Lee, Mr. J., his exhibits, 99
Liability of railway companies for damage, 186
Ligurianizing, 6
Ligurian queens mating with English drones, 91
Ligurians, 48; and the donkey, 75-77; and black bees, 102, 230
Lincolnshire Bee-keepers' Association, 65, 106
Liquor potassæ, a remedy for stings, 49
Little Wonder, the, 45, 46, 68, 69, 85, 87, 90, 114, 122, 123, 129, 133, 210
Local secretaries and the Central Association, 123
Loft, bees kept in a, 182
Long's comb-foundation, 28, 47
Maraldi, his work on bees, 227; his measurement of the angle of a bee's cell, *ib.*
Making the most of it, 174
Manfield, Mr., his supers at the Sherborne Show, 105, 121
March, 189
Martio, W., his exhibits of honey, 98
Mason-bee, 64, 71
May, 4, 5; weather in, 37
Mead, 166; receipts for making, 208, 224
Melissus, the inventor of bee-hives, 180
Melilot clover, 87, 217; mode of planting, 91
Metheglin, Queen Elizabeth's, 137; difference between it and mead, 224
Michigan Agricultural College Apiary, 160, 161
Mignonette, 165, 217
Milk diet for bees, 197, 220
Mitchell, Mr. his treatment of glass supers, 86
Mobilism and fixism, 178
Monster super at the Manchester Exhibition, 86
Mustard, 217
Mysteries of the bee-hive, 1, 20, 38-40, 73–75, 118, 119, 191
Mystery, a, 48; sequel to a, 63
Nadirs, heavy, 89
Nadiring system, 167, 177, 178, 201, 202
Nasturtia, 165
Natural swarms, treatment of, 5
Nature and science, contrast between, 28
Neighbour and Sons, their observation hive, 97; their moveable comb hive, 98; their Ligurian and English bees, 98; their bee-furniture, 99; their impressed plates, 100; *v.* Hope Johnstone, 219
New Zealand, attempt to import bees to, 12
Noise, its effect on bees, 90
North Cheshire, past season in, 207
November, 117
Novice, experiences of a, 209
Nuclei for queen-raising, 402
Nucleus hives, 24, 25, 213; stocking the, 25
Nurse-bees, 2
Observatory hive, 230
Octagon (Stewarton) hive, honey in, 87; its inventor, 201, 226
October, 95
Odiham bee show, 123
Packing swarms, 70
Paper-maker's woollen felt as a quilt, 90
Peas-meal as artificial pollen, 45, 190
Pellenc, M. his artificial pollen-feeder, 191. 223
Perforated zinc, 91; adapter, 112
Personal favour, 91
Pettigrew, Mr. 14, 44, 61, 84, 86, 195, 196; his challenge, 216
Phacelia, 89, 217
Philadelphia Centennial Exhibition, beehive and honey show at, 169, 170
Phillips, P. H., his exhibits of honey, 98
Picnics for bees, 17
Pine, Dr. his bee-keeper's lotion, 55, 56, 88
Plaster dummies, 146
Pliny, 180
Poetry: The knowing bee, 9; Invitation to a bee and reply, 44; The hen and the honey bees, 67, 68; The bee's sermon, 150; A new reading of an old author, *ib.*; The wild bee, 211; The song of the bees, 217
Pollen, nature of, 1, 2; carrying, 51; and honey, 91; feeder, 194, 223; pellets, 206, 207
Poole, Mr. his services at the Weston-super-Mare Show, 78; his nucleus hive for queen-raising, 100
Primogeniture, law of, among royal bees, 40
Prize fund, donations to, 42
Prolific stocks, 90, 115
Propolization in Lanarkshire hives, 132
Provincial Associations, exhibition tent necessary to, 153, 154
Puff-ball fumigation, 91
Purchas, Rev. Sam., the first to call the queen bee a queen mother, 200
Putting down *versus* the sulphur pit, 85
Queen, the, her fecundity, 8, 24; sting of, 14, 63; wings of, clipping, 71, 213; effect produced upon, during the formation of queen-cells, 73, 74; bees ceasing, 84; unsuccessful search for, 204, 205
Queens, discussion respecting, 26; treatment of, during the construction of queen-cells, 39; and queen-wasps, 38, *n*; young, their onslaught on their unborn sisters, 40; fights between rival, *ib.*; choosing their mates, 51; do not lead off the swarm, 75; raggedness of their wings how caused, 75, *n*; enclosing, during the honey harvest, 85
Queen-introduction, 131, 206
Queen-raising, 23, 24, 206

Queen-cells, 21, 24; utilising, 5; construction of, 39; bees destroying, 50; formation of, 73
Queenless stocks, 19, 151, 191, 230
Queen-wasps, 38 *n*, 49, 153
Queries and replies, 50, 132
Quilt, the, 29, 30, 33, 96, 147, 201, 230; improved, 144
Raffia, 90
Raitt, Mr., his sectional supers, 99; his mystery, 48, 63
Rape, 217
Raynor, Rev. G., his exhibits of honey, 98; hive, 136; his honey harvest, 160
Readers, to our, 1
Remedies for bee-stings, 7, 49, 57
Removing top storeys, 133
Renfrewshire, the season in, 87, 88, 143
Ringing when bees are swarming, 112
Rosemarine, 165
Royal cells, preparation of, 39
Royal jelly, 39
Rural superstition, 67
Saliceto, his ideas on bee-culture, 149
Salicylic acid, a cure for foul brood, 83, 129; its usefulness in diphtheria, *ib.*: its uses, 113
Salop Bee-keepers' Association, 194
Sawdust as quilts, 205
Scott, Rev. F. T., lecture on bee-keeping by, 162
Season in Lanarkshire, 60, 182, 208
Sectional supers, 7, 62, 133
Seradella a bee-plant, 198
September, 73
Sexes of eggs, 222
Shakespeare, references to, 1, 8, 124, 179
Shams at shows, 168
Sheba's, Queen of, puzzle, 29
Sherborne, Bee and Honey Show at, 104, 105
Sherrington hive, 89
Shropshire, Bee Association for, 169
Siebold, Von, on the eggs of virgin queens, 191
Skeps, overladen, 61; light, 73; coverings of, in winter, 117; removing combs in, 133
Slow feeding, 15
Somersetshire, echoes from, 49
Spiders, 153
Spring experiences, 45
Staffordshire Bee-keepers' Association, 28, 58, 217
Standard frame, the, 11, 132, 142
Standard hive, 188
Stewarton hive and system, 69, 114, 225
Stimulative feeding, 16, 189; in Germany, 219
Stocks, removal of, 6; uniting, 14, 96; losses of, 15, 16; prolific, 44, 57; apparent idling before swarming, 74; examination of, 95; equalizing of, 95, 96; weight of, 189; management of, 191
Strathbogie Bee-keepers' Association, 79
Straw crowns to frame hives, 212
Strong stocks, advantage of, 78
Suggestions, 62
Sunflowers, 87, 146, 205, 223
Supering, 6, 41, 86, 230; the new method of, 62, 87
Supers, 183; preparation of, 6; sectional, 7; time for, 17; glass, 41; bees storing honey in, *ib.*; packing, 53, 54; ventilation of, 55
Surplus stocks, method of utilising, 85
Swammerdam, M., discovers that the queen was the mother of the hive, 201
Swarm, early, 15; time of issue of, 51; loss of, 50, 71
Swarms, second and after, 7; size of, 8; first, 74; issue of, from hive, 74; hiving, 75; selling by weight, 212
Swarming, preparation for, 23, 74; philosophy of, 38; cause of, 84
Swarm-boxes, 186
Switzerland, 48; bees in, 201
Syrup, 47, 204, 228; receipt for, 16, 97, 205
Tapes, 32
Tent, subscriptions toward, 122; for exhibitions, 153, 154, 166, 181, 213
Thomson, 124
Tobacco smoke, 51
Tom-tits, 153
Transferring stocks, 6; from skeps, 73
Uniting driven bees, 201; stocks, 51, 63, 64, 115
Variations in the honey harvest, 130
Various items, 83, 209
Ventilation, 97, 114, 117
Veteran bee-keeper, 57
Virgil, 10, 30, 124, 178, 179
Wagner, Samuel, his theory as to the sexes of eggs, 192; his theory refuted, 221
Walton, Mr., his exhibits of honey, 98, 99; prizes obtained by, 101
Want and Sale Column, 18, 34, 52, 72, *et passim*
Wasps and hornets, 63; precautions against, 77
Water for bees, 60
Wax, formation of, 118
Wax-extractor, 120
Wax-guides, 6, 7, 147, 215; fixing and making, 25, 26, 47, 51, 90, 225; impressed, 84
Wax-moth, 46, 47
Wax-pockets, 118
Wax-smelter, 26
West of England Apiarian Society, 28, 43, 78, 79
Westbury-on-Trym's Association, 143, 144, 181
Western bee-keepers, chance for, 228
Weston-super-Mare, bee show in, 32, 78
Willow herb, 204
Wilson, Mr., his observation hive, 97
Winter campaign, suggestions for the, 112; food, 96; passages, 91, 117
Wolverhampton, Bee Show at, 58, 104
Woodbury, Mr., his teachings, 53; hive, rule for dividing, 33; storifyer, 172
Wooden hive coverings, 231
Worcestershire show, 101, 122, 123
Worker-comb, 119
Worker-egg, transformation of, to a queen, 39
Yorkshire Moors, honey harvest on, 89
Yorkshire bee-keeping, 130
Zinc adapter, 91, 112

CONTRIBUTORS.

Al. V. di S., 15
Anderson, A. J., 129
Armstrong, J., 87
Atkinson, W., 130
Bagg, R., 45
Barker, W. P., 209
Bee-keeper, 144, 168, 228
Bennett, R. J., 169, 181
Briscoe, J. E., 29, 114, 200, 222
Bristol, J., 167, 205
Burchardt, A. G., 29
Camaschella, J., 149
Carr, W. Broughton, 207
Carr, W., 10, 166, 180, 200, 223, 227
Chaplin, C., 143, 181
C. J., 112
Clarke, A. J., 86
Clutten, S. F., 113
Country Doctor, a, 197, 219
C. S., 29, 146, 202
C. T., 112, 129, 169
Cyprian, 145
Danyell, A. J., 113, 144
D., Deal, 221
Desborough, J. G., 28, 224
Duke, W., 85
Edwards, C. H., 144
E. M. T., 61
Essex Bee-keeper, 202
Eldridge, J. H., 149, 181, 197, 201
Exhibitor, 166
F. B., 58
Fielding, C., 169
Foxwell, G. F., 80
Frere, W. J., 28, 58
Fuggle, H. J., 180
F. W., 148
Gee, W., 145
Gell, F., 29
G. H. P., 59
G. M., 85
Gravenhorst, C. F. H., 198, 221
Gray, C. N., 113
Griffin, W. N., 204, 205
Hampshire Bee-keeper, a, 146
Harland, C. J., 64
Henderson, George, 178
Highland Bee-keeper, 12
Howard, J. H., 147
Illingworth, G. R., 63
Irving, J., 209
I. T. B., 59
J. B., 79, 112
Jenner-Fust, H., 11, 142, 181, 183, 204, 208
Jones, J. Clevere, 84
J. R., 59
J. S. (Arbroath), 59, 63, 203, 223
J. T., 209
Kirsten, J. G., 13
Lady Bee-keeper, a, 113
Lanarkshire Bee-keeper, 13, 14, 44, 60, 83, 88, 168, 195, 206, 224, 225
Lincolnshire, 146
Londonderry, 147
Maxwell, J., 59
Neighbour, Alfred, 177
Nethermost, 167
Novice, 94, 122, 223
N. S., 129
Omnia explorate, 144
O. O., 223
Oxfordshire Bee-keeper, 183
P., 11
Pode, J. D., 112
Poole, O., 28
Punnett, W. C., 14
Questioner, 129, 226
Raitt, W., 48, 63, 87, 145
Reader, 228
Renfrewshire Bee-keeper, 86, 87, 143, 148, 166, 177
Rogers, G., 145
Rusbridge, A., 59, 87, 208
Rust, J., 64
Sandown, 80
Scott, F. T., 134
Shearer, James, 182
Sheepshead, 63
Sherwood, M. H., 14
Shufflebotham, C., 63, 85, 146, 204
Sillifant, W., 13
Sisson, J. L., 47
Sleaford, 145
Somerset, 144
Somersetshire Bee-keeper, 228
Sydserff, T. B., 14
T. H. B., 182, 228
Tisoe, G., 144
Torry, J., 130
T. W. B., 226
Wall, G. H., 28
Wall, Harvey, 109
Warwickshire Bee-keeper, a, 44
Watson, G., 228
W. D., 62
Whithorne, A., 48
Wilkie, John, 28, 47
Wiltshire, 46
W. J. F., 61
Youens, E. C., 181

THE

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Editorial, Notices, &c.

TO OUR READERS.

With this number commences the Fourth Volume of the *British Bee Journal;* and, encouraged by the opinions of our numerous correspondents, the congratulations of friends, and the support of the bee-keeping public generally, we, with increased confidence, take the helm, and hope during the next twelve months, with the aid of as stanch a crew as ever pilot was proud to acknowledge, to bring our bark as safely through the dangers and difficulties of 1876 as we have through those of former seasons. Of our 'staff' we cannot speak too highly; they are volunteers in every sense, and ever ready; and so well do they serve that not a line can be complained of, or a mistake found in the reckoning. Our passengers have vastly increased in numbers, thanks to the recommendations of those who have sailed with us in safety on former occasions, and from their good report we have every confidence in the future before us. All we ask is, that intending passengers will book their places and pay their fares at once, to save us the trouble of collection afterwards.

THE MYSTERIES OF THE BEE-HIVE.

In undertaking to invade a bee-hive, and unravel some of the mysteries which like a cloud surround it, and hide from the general view the economy of its organisation and government, we feel somewhat in the position of a friend who once proposed to write an exhaustive article on poultry, but who was so puzzled as to whether he should begin with the egg, the chick, or the adult bird, that he never wrote more than the head-line of his intended treatise. *Our* puzzle is, where to begin? We have to deal with eggs, chicks, adults, the stock, and the swarm, and cannot decide which to consider *first* in the order of nature; but being determined to begin somewhere, we propose to take things as they are; and if our readers will kindly bear us company we will proceed at once to the apiary, and see what is going on in a hive and what it contains. It is a lovely day, the bees are working admirably, and all is life and animation; and that we may not be led into error by any abnormal appearances we will select the busiest stock for observation, as being the most likely to be healthy, and at once proceed with its examination and explanation.

The bees are humming merrily, going and coming in rapid succession in two streams, and the first wonder is that the outward and homeward-bound do not collide and injure each other; but they do not, for the outgoing bees rise quickly from the hive and dart away to their pasture at a high level, while the incomers, laden with the spoils of the field, fly in a lower plane, alight upon the floor-board, and without let or hindrance enter the hive. Some of those entering, excepting a slight distension of their bodies, show no sign of the nature of the labour in which they have been engaged; yet if dissected there would be found within them a small bladder, called the honey-sac, which may contain water for the use of the household, or may be filled with watery nectar extracted from flowers or blossoms, while others will bear upon their thighs brilliant evidences of the flowers they have visited and rifled of their pollen. It is highly interesting to observe that the pollen on both the hind-legs of each particular bee is precisely the same both in colour and quantity; yet if comparison be made between individuals, their loads will be found to vary materially in both; in colour from black-green, to pale primrose and deep orange, and in bulk from the size of a split-pea to that of a small caraway seed. These loads of pollen have for many generations been mistaken for loads of wax; even our great Shakespeare countenancing and propagating the error in the second part of 'Henry IV.,' where of 'foolish over-careful fathers' he says—

> 'When like the bee culling from every flower
> The virtuous sweets;
> Our thighs pack'd with wax, our mouths with honey,
> We bring it to the hive, and like the bees
> Are murdered for our pains.'

Closer examination than was given in those days has, however, proved that the thigh-loads of the bees consist of pollen from the anthers

of flowers (except in cases where artificial pollen may have been obtained, of which we shall speak hereafter), and that the load of each individual is of precisely the same character throughout. Further investigation has proved that in obtaining this *bee-bread*, the bee on each excursion has visited only one species of flower or blossom, gathering greater or less quantities of pollen or honey as each may have yielded its proportion, thus fulfilling the most important purpose of its life, the correct fertilization of flowering plants; if the bee had gone from one kind of flower to another, the result would have been hybrid plants, and thus the purposes of nature would have been counteracted. Many writers have asserted that the collection of pollen by bees is accidental; that the nectaries of flowers tempt them with their secretions; and that in seeking the honey the pollen is collected incidentally; but since the introduction of artificial pollen it has been many times proved, that while some bees will gather pollen only, others will not touch it, but will indulge their propensity for honey, and at the same time there are those which collect both, and this will account for the difference in their appearance as they enter the hive.

Now having seen the bees enter the hive with their respective spoils, let us watch and see what they do with them. The honey or water-laden bee, as a rule, marches directly to the honey-cells, beyond, above, or possibly within the brood-nest, and if not waylaid by a hungry young nurse-bee, will discharge the contents of its honey-sac into one of them; but should it meet with a sister craving for liquid with which to make the pap for the young bees, it will at once impart to her the contents of its sac, and go back to the fields for more. There is great economy in this latter proceeding, as it saves the labour of storing and withdrawing the newly-gathered honey, and leaves that already stored intact, to be added to only when the ingathering is greater than the demand.

The pollen-laden bee upon entering the hive makes directly for the brood-nest, and where its load is required, it quickly disencumbers itself. Sometimes the nurse-bees are in want of the all-necessary pollen, and nibble it from the legs of the worker without ceremony, but more often the bee goes to a cell devoted to pollen-storing, and hangs by its first pair of legs to another cell immediately above, and by the aid of its middle pair of legs it unloads its hindmost, and (as it were) kicks the balls of pollen into the proper receptacle. Here they are mixed with a little honey and kneaded into a stiff paste, which is then rammed hard against the bottom of the cell, for future use, the bee using its head as a battering-ram; and these operations are repeated until the cell is almost filled with the kneaded dough, when a little clear honey is placed on the top, and it is sealed over and preserved as bee-bread. If a cell-full of pollen be cut in two, longitudinally, its contents will, as a rule, be found of many colours, stratified, the strata of varied thicknesses standing on edge, as if the bees, instead of storing bread, had stored pancakes.

Having followed our bees to the cells, and seen them deliver their surplus loads into them, we will make no apology for offering a few remarks on the cell's wonderful structure. It is pretty generally known that combs are formed of wax, and that the cells are hexagonal and are of different sizes, facts which will be treated of when we come to look at the doings of the May swarm, which every bee-keeper expects; at present, the cell alone claims our attention. Almost all bee-books tell us that the base of a cell is formed of three lozenge-shaped plates of wax—very particular people call them rhomboidal; but as, perhaps, neither term may be

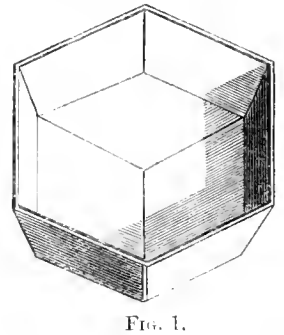


Fig. 1.

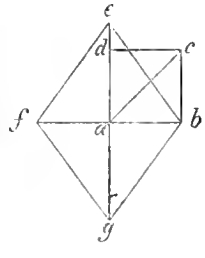


Fig. 2.

very clear to the uninitiated we will define them as being of very similar shape to the ace of diamonds in a pack of playing-cards. These three plates then, when joined together at their obtuse angles, form a shallow cup, as in centre of fig. 5; and if six more be fitted to its sides as panels, a shallow cell will be formed of perfectly hexagonal shape, with serrated edges, which only require a little additional wax to render them even, and form a true bee-cell. A great deal has been written about the lozenge-shaped plate; but as it is not commonly known how to arrive at its true shape, which to a lecturer will be the key to the whole business of comb-formation, a short description may be welcome. There is no difficulty. Take a square of any size, *a b c d*, produce the line *b a* towards *f*, of the same length as *a b* and *a d*, both ways, until *a e* and *a g* are both of equal length with the diagonal line *a c*; then by drawing lines, uniting *b e f g*, the required figure will be formed.

There is another way of arriving at the same result, more readily than by the former. Make a cross on a piece of paper, tin or zinc, cut a piece of card perfectly square (a carpenter's

square will enable any one to do this), draw a diagonal line, *a e*, across it, fit the square in the angle, as shown above, and mark off *b;* turn the card to the left on the point *a*, until the diagonal line *a c* is perpendicular, and mark off *e;* turn the card again to the left, still on the point *a*, until *a d* is horizontal, and mark off *f;* turn it once more, until *a c* has *fallen* into perpendicular again, and mark off *g;* draw lines *b e f g*, as before, and the lozenge will be produced. And we would advise every bee-keeper to draw one on tin, zinc, or other thin metal, and cut it out, as a ready means of instruction to his family and friends. Now if we lay this lozenge upon a card, and mark with its shape, and cut out the following figure, which can be readily done, we shall have the material for the base of the cell (the cup) above mentioned; and if the lines radiating from the acute angle in the centre (fig. 3) be cut half

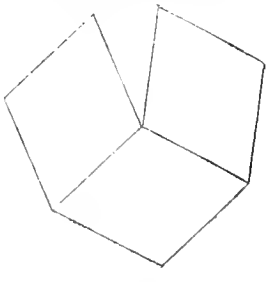


Fig. 3.

way through, and the points be brought close together, the cup itself will appear as in fig. 5, which, when inverted will, of course, assume the form of a triangular cone. Now if a number of these be made, and fitted together as cups and cones, alternately, the foundation will be formed on which the cells are built, which is as beautiful as it is interesting. If the shape (fig. 4) be cut

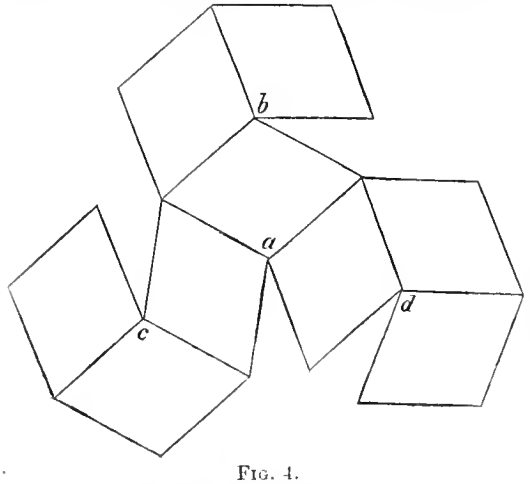


Fig. 4.

out on card, and the lines radiating from a cut half through, on the top-side, those from *b c d*, on the under-side, and each trio brought together as in fig. 3, and united by a stitch, a small piece of cup-and-cone foundation will be formed (fig. 5), which will enable the learner to see at a glance how the whole is arranged. If, now, a strip of card, consisting of six lozenges, as in

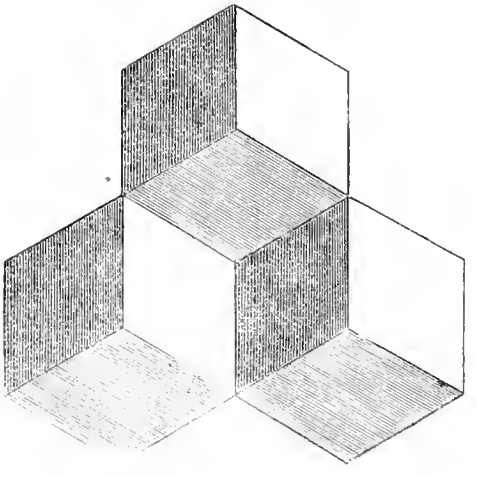


Fig. 5.

fig. 6, be cut half through at each of the lines, and folded, the six panels will be formed, which will fit into the hills and furrows of the cup and comb foundation (fig. 5), and will show the great beauty of the arrangement, by which the point of the base of each cell, on either side of a comb, is made the point of intersection of three panels of three other cells on the other side, giving immense strength to the structure. A single cell may be formed with a card of the shape of fig. 7, cutting half through the lines round *f*, on the under-side, and all the others on the upper, and folding *a* to *b*, *c* to *d*, *e* to *f*, and *g h* to *a b*, a cell (fig. 1),—which from the number of its angles our artist has found it difficult to depict,—will be formed which will require but slight increase to its walls to make it perfect.

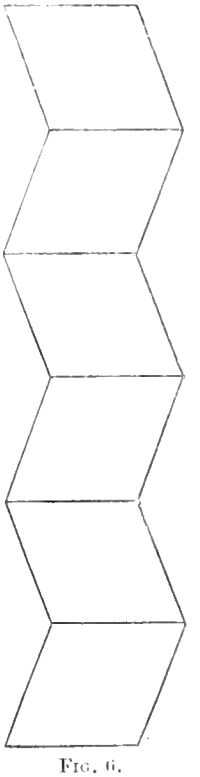


Fig. 6.

Having traced the bees to their cells, and shown how they are made, we will, in a future visit, show their uses as dwellings and store-houses, the arrangement of the streets and alleys in their city, and the building of the palace-nurseries in which the queen's successors will be cradled when the increase of the number of the inhabitants renders it necessary for a new

colony to be founded; and we trust our friends

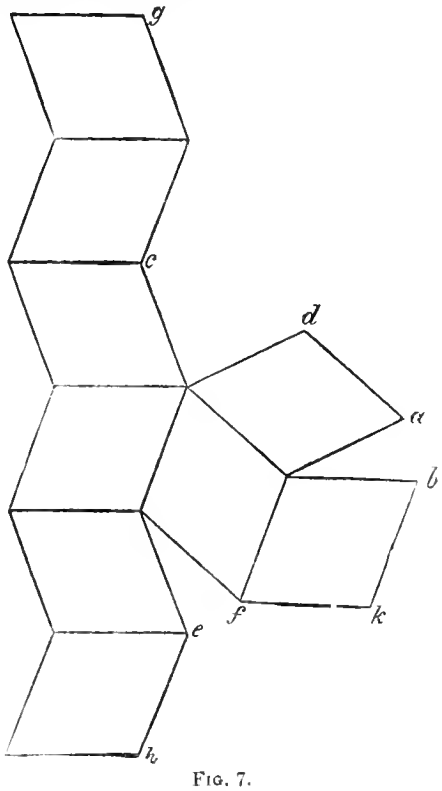


FIG. 7.

will find it pleasant and interesting to accompany us.

MAY.

The experiences of the past year, though most unwelcome to all apiarians and disastrous in the extreme, will, we hope, afford a salutary lesson to old-fashioned bee-keepers, and arouse them to the necessity for improvement in their method of management. From all parts of the kingdom come reports of losses, which, if general, would be extremely disheartening and would stamp apiculture as the most risky business in which one could engage with a view to profit; but, fortunately for us, almost all the losses that have occurred have taken place in apiaries which have been left to take their chance, and where *culture* has been eschewed as unnecessary. That losses may have occurred in the best regulated apiaries we are willing to admit, for 'accidents will happen,' but in nine cases out of ten vigilance and attention would have prevented the mischief. 'Of course,' writes an apiarian, whose bees had been destroyed by mice, 'I ought to have found it out before the mischief was completed; but in this, as in other things, carelessness has met its reward.'

As a rule, it is amongst the cottage bee-keepers that the most serious losses have taken place,—cottagers for whose benefit the British Bee-keepers' Association was founded, and in whose behalf the numerous bee-shows which have been held in different parts of the country have been inaugurated, in the hope that they would lead to a better understanding of the nature and habits of the bees, and to the adoption of the improved method of cultivating them. True it is that many have been turned from the error of their ways, but the great majority, the bulk of rural bee-keepers, have adhered to the old *let-alone* system, which in the day of trial has proved utterly fallacious and ruinous. We could fill many pages with 'echoes' of the losses which have rendered whole districts almost bee-less; but it is not necessary, for everywhere our readers, if they look around amongst their cottage neighbours, will find the number of their hives reduced from fifty to eighty per cent, and in too many instances the apiaries completely destroyed. On the other hand, the reports from those who have adopted the improved method of management are most cheering, and the losses exceptional. There is a grain of comfort in the hope that the *catastrophe* will not have occurred in vain, and that bee-keepers of the ancient type will, in future, be something more than bee-owners, and recognising the value of their stocks will give them at least sufficient attention to prevent the recurrence of so great a calamity as that just recorded. Associations have been formed and are forming, 'for the encouragement of bee-keeping amongst cottagers, by offering prizes, giving lectures, illustrations of the manipulation,' &c.; and we sincerely hope that the lesson of the past twelve months will open the rural mind, and render the teaching more easy and more readily acceptable.

May—the merry month of May, the month that gave to us our own beloved Queen—is of all the months in the year the most distinguished in the annals of apiculture. Celebrated as the month for swarming, many bee-keepers look forward to May as to a goal, to which if they can but bring their bees alive, their troubles will be ended, and that then they have nothing to do but let them swarm; or, if that be not desirable, to put on the supers, and reap a golden honey-harvest. Truly, if 'twere true, as thousands believe it always to be, bee-keeping would be one of the most charming pursuits in life; and that occasionally it *is* true, no one will deny, but as a rule a season fulfilling such desirable conditions does not happen more than once in a decade of years, and although highly prized and fondly remembered, is but delusive and a snare. Bee-keeping does *not* present a *royal* road to wealth, but it offers a *certain* return to those who will take the trouble to learn the alphabet of the science and apply

its rules, and those who will not do so ought not to enter the business.

The past month of April began with weather the most charming, and except where natural pollen could be obtained in quantity, pea-flour and other meal were freely taken by the bees; but as the natural is always preferred to the artificial, the meal in the presence of true pollen remained unvisited by them. The fine weather up to the 8th brought the plums and many cherry-trees into full blossom, and gave the bees a delightful treat, inducing many bee-keepers to believe that the summer weather would continue; some impatient spirits having sufficient faith to commence artificial swarming, and the transfer of their stocks from skeps to bar-frame hives. It soon, however, became apparent that 'one swallow does not make a summer,' for during the ensuing week we were visited with a snow-storm of unparalleled severity, and Good Friday morning (April 14) discovered six inches of snow on the ground, and snow still falling heavily, and so great was the accumulation on the blossoming trees, that many were broken by its weight and destroyed. Fortunately, the snow was not accompanied by severe frost, or many stocks would have been much injured, so that, by simply contracting the hive entrances to the smallest feasible dimensions, the threatening mischief was averted, or the chilling of brood might have done immense injury.

The snow happily thawed away as rapidly as it came, and, thanks to the timely precaution, little harm was done.

NATURAL SWARMS

Should be hived as soon as they have clustered, and when the presence of the queen within the hive has been determined by the bees flocking thereto, it should be at once taken to the stand it is to occupy, if within sound of the clustering point. If the distance is great, it will be well to stand it in the place of the old stock for half an hour, that the bees returning from the field may strengthen it; after which it should be taken to the stand it is to occupy, and the old stock should be brought back to its former position. Many writers advise that swarms should be placed permanently upon the old stands, the stocks being removed to other quarters, but sometimes so many bees leave the hive with the queen, that, but for the drones, it would be almost tenantless; and if it be removed at such time, so that the flying drones are forced to join the swarm, knowing no other locality; the old stock will be in danger should a cold night ensue. The practice may be desirable as shown under the heading 'removal of stocks,' but except for such purpose we cannot recommend it. Before hiving swarms in skeps, it will be advisable to fix a guide of comb or wax in the crown, running from front to rear. Take care that the hole in the crown, if any, is closed with a bung, and when the bees are hived, let the back of the hive and floor board be raised about an inch, that straight combs may be built, to be more readily available in case transferring ever becomes necessary.*

ARTIFICIAL SWARMING.

Almost every authority urges the advisability of obtaining swarms as early as possible, and this so strongly that many are induced to form them artificially before the stocks are ripe, and often to the great detriment of both. Four things should coincide ere the making of artificial swarms is determined on—viz., the stock should be very strong, the weather should be fine, there should be abundance of honey, and the presence of normal drones,—we say normal, because the drones bred by fertile workers and virgin queens are considered useless. When this happy condition is arrived at, artificial swarming may be commenced; but we would urgently advise that in every possible instance, the deprived stocks should be furnished with ripe queen-cells or surplus queens, by which latter are meant, queens already on hand. Queen-cells cannot be obtained until a stock has been for some days deprived of its queen, either by removing her for the purpose, as many do, and making artificial swarms when the cells have been raised by the full stock; or by natural or artificial swarming. The usual plan, however, is, to first make an artificial swarm from the most forward stock in the apiary, and seven or eight days after, when the number of queen-cells available has been ascertained, to make as many new swarms as they will warrant, and after the lapse of twenty-four hours, to give one sealed queen-cell to each stock so swarmed, leaving one in the hive on which they were raised. It may then be reasonably expected that within three or four days the old stocks will be furnished with young queens, and so be saved the time and labour of raising them for themselves. Should a natural swarm issue, artificial swarming may be begun a few days afterwards, utilising the queen-cells naturally raised, which some think

* The mode of preparation and hiving in bar-frame hives was fully described in *Journals* for April and May 1875, and will presently be re-published in a leaflet, free per post for a penny stamp.

much better than those enforced, although we have never proved it so; it will, however, be good policy to examine the stock-hive before commencing swarming operations, for sometimes '*early swarms*' are driven forth by hunger, in which case a great mistake might be made.

Ligurianising.—The making of artificial swarms affords excellent opportunities for the introduction of Ligurian queens, when they can be obtained thus early. The fact of the old bees being with the old queen in the swarm, renders the operation safer and more certain, and it is only necessary to encase them in a tube of wirework or perforated zinc for forty-eight hours, to almost ensure their safe reception. As young bees will be hatching every minute that knew not the former sovereign, so will they take to her as kindly and willingly as young ducklings to the old hen that hatched them, knowing and caring for no other mother (?), but with this difference that it being the province of the young bees to prepare and offer food where necessary, so will they surely find their imprisoned queen, and thus cultivate her acquaintance.

Removal of Stocks.—When it is found that the present position of stocks is not satisfactory, the time of swarming will afford an excellent opportunity for effecting their removal to any other part of the garden. While the swarm is alighting on the bush or branch, the stock-hive should be carried to the proposed new locality and put permanently on its stand, and the swarm should be hived, and put in the place just vacated until the evening. The effect will be that all the bees that have ever flown will come to the swarm on the old stand, where they will be under the influence of the swarming fever or mania, and will stay with the cluster, which at night may be safely removed to any other part of the garden. It is possible that *a few* bees belonging to the swarm will have gone to work in the fields during the afternoon, and having marked the old spot will probably return to and hover about it for a few hours on the next day, but such bees having been out, and returning from the fields, will be *laden*, and if they do not find their own home, will be welcome at some other, the passport being the treasure they bear with them. The old stock having lost the swarm, and all its other flying bees (drones included) will require protection from a possible cold night ensuing; and, therefore, to husband its heat, it would be well (as soon as the swarm has been housed) to narrow its entrance so that only one bee can pass, and at night to stop it altogether with a bit of cotton wool until the morning, during which time many hundreds of young bees will have hatched, which becoming at once active as consumers and nurses, will keep up the required temperature. In such removals it would be advisable to place the stock, and swarm as near together as convenient, that the drones which will have accompanied the latter, may have no difficulty in discovering the old stock when they find they are not wanted with the swarm. Drones are great heat producers, and are at times most valuable.

TRANSFERRING.

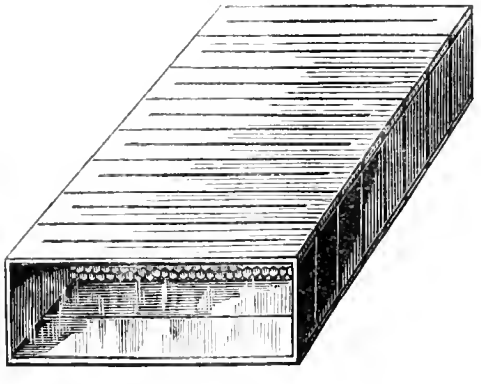
We feel it necessary to caution amateur bee-keepers against undue haste in transferring their stocks from skeps to bar-frame hives. However desirable it may be to get the bees into hives which will give command of the combs, and enable the bee-keeper to examine them and manipulate with ease and freedom, we advise every one whose bees are doing well to allow them to remain where they are evidently comfortable, until twenty-one days after they have swarmed. The swarms can be put into clean hives, the frames of which have proper guides in them, and at the end of that period, when all the brood will be hatched, the stocks can be transferred without injury; and if the combs of two (ordinary) skeps be placed in one bar-frame hive, and the bees united, a stock will be formed which may be supered as soon as the combs have been fixed and the temporary fixings removed. In fitting the combs to the frames, an undue proportion of drone-comb should be excised and rejected; a piece of the size of the palm of the hand only being allowed within the hive.

If it is intended to utilise old combs, by giving them to swarms, they should be placed in alternate frames only, unless the weather is unkind and the out-door supplies meagre; otherwise the bees, all being capable of working, and having no brood to attend to and no comb to build, will so fill the cells with honey and pollen as to leave few vacant cells for the reception of eggs, and the colony, although attaining weight rapidly, will eventually prove useless for stock.

SUPERING.

Those who prefer honey to swarms should prepare their supers with guides of comb or wax; and if glasses are to be used, each should be furnished with a thin floor-board of its own, so that on removal it may not be necessary to break the combs at their bottom edges. In a stock-hive bees only attach their combs to the sides of the hive, as far down as the honey is stored, and the rule holds good with supers; and as they are intended

solely for honey, the bees, if the yield and the weather permit, will build their comb quite down to the bottom; and unless the super be furnished with a bottom of wood or glass that can be taken off with it, the beauty of the whole may be spoiled by the breaking of the combs as it is lifted off, for oftentimes, glass being unyielding, it is impossible to pass a knife or wire beneath it to sever it. The supers of which we most approve, are those formed in sections, which having each its own central guide, will be filled with one straight comb only, and as soon as filled may be removed, and other sections given. By the use of them the capacity of the super may be regulated to suit the requirements of any sized colony—a facility which will recommend them to all bee-keepers, as by using a small number at first, the bees, though not very strong, may be tempted to commence storing in them, whereas if a large super be put on, they may, and often do, refuse to work in it at all, and use it for a lounging place until they are ready to swarm. Those we have adopted measure 8 inches in length, 4 in depth, and 2 in width (nearly). They are intended to be placed



close upon the frames, and when those first placed thereon do not cover the whole of the frames, strips of carpet should be laid on the uncovered parts so as to be readily removable when it is necessary to increase the number. By this method storifying is rendered unnecessary, as when filled they can be instantly removed, and their pristine purity preserved. Another great advantage with them is that almost any one can make them—take two pieces of board ¼-inch thick, 9 inches long, and 2 inches wide—two pieces, ⅓-inch thick, 4 inches long, and of same width, and nail them together, and a section will be complete. To ensure close fitting, it will be better to make four or five in one, *i. e.*, take two pieces of board ¼-inch thick, 9 by 8, two pieces ½-inch thick, 8 by 4, and nail them together to form a box minus its sides, then cut it into four sections with a fine saw, and when put together, they *must* fit each other, because only the saw will have passed between them. The end sections of a row, as in the engraving, will require closing with pieces of glass, which can be held in their places by pins driven round them, and bent inwards. It is well not to cut entrances to them until wanted as they may be required for hives with peculiar adapters, and it will be easy at any time to remove a part of the bottom of any section with a penknife. Each section should have a wax-guide along its centre.

Second and After Swarms.—These have various names in different counties according as they come forth, but the best plan is to christen them with a number, as second, third, fourth, &c. Many writers recommend that these swarms should be returned to the parent hive; and if honey be the object sought, it is doubtless the best policy, but when increase is desirable, second swarms properly managed will often become more valuable than first, through being headed by young and vigorous queens, and consisting of young bees only. Proper management consists in confining the bees to a space in the hive proportionate to their size, keeping them fairly supplied with syrup, that their comb-building operations may not flag, and gradually increasing the space allotted to them. Second and after-swarms generally build worker comb only.

REMEDY FOR BEE-STINGS.

We have been induced to accept the agency for the sale of a new lotion, which is represented to be a certain cure for the stings of bees and the bites of other insects. It came too late to enable us to give it a trial, as we could not find a volunteer to risk the pain of stings. It will, however, quickly be reported on, and if not what it promises to be, some one else may have the agency. The remedy is called Dr. Pine's Bee-keepers' Lotion, and further description will be found in advertisement.

DEVON AND EXETER BEE-KEEPERS' ASSOCATION.

The second General Meeting of the Association was held at the Athenæum, Exeter, on Wednesday, April 19th, 1876. The Hon. Secretary (Wm. N. Griffin) having read the minutes of the previous meeting. Mr. S. Bevan Fox, President of the above Society, delivered a most interesting lecture on 'The Hive and Honey Bee.' There were various specimens of hives, supers, and bee furniture, kindly lent for the occasion by Mr. C. E. Fletcher and Mr. Wm. N. Griffin. The lecture ran as follows:—

The *Lecturer*, who was received with applause, said the honey-bee played an important part in the economy of Nature; and whether they considered it as essentially a working insect, an individual of an active common-

wealth where each one strives for the welfare of the whole community, or in relation to its usefulness to man, he thought a very high place in their estimation must be accorded to it. It would require a greater proficient in the art of lecturing than himself to describe in clear and distinct, yet not tedious, terms the beauties and peculiarities of its physiology, or the chief characteristics and salient points connected with its internal economy. He trusted, however, to be able to interest them for a short time; should he fail in the attempt, doubtless some among them, like the irate bees, might be ready to administer to him a 'stinging reproof.' He had heard one of their best and most popular lecturers—Mr. Pengelly, who was doubtless well known to many of them, say, that while a paper to be read before a scientific society should contain nothing that was old or well known, a lecture, on the contrary, should comprise nothing that was absolutely new. He should have no difficulty in carrying out the last clause of that theory, for he feared he had little to offer them that was not already well known to the majority to those present. The bee had been known to man from the earliest recorded ages. They found frequent mention of it and its works in the Bible. Solomon must have been an admirer of honey, for he says, 'My son, eat thou honey, because it is good, and the honey-comb, which is sweet to thy taste.' Some of the very early writers on bees propagated a delusion, which is mentioned by Virgil, that a swarm of bees might be procured by killing a heifer, which was to be deposited, with sundry formalities, in a certain place; in due time, it was said, a swarm would be generated in the carcase. A modern author claimed for himself the merit—if such it was—of having, when a boy, sacrificed one of his father's calves with this object, hoping to astonish and gratify his parent with the swarm. The idea occurred to him of following Virgil's advice to the letter. Strange as it may seem, his experiment did produce a swarm, but not in the way he had anticipated. His father, seeing how eagerly his mind was bent on it, procured a swarm for him. Many poets had chosen the bee for their theme, and Shakespeare was evidently an ardent admirer of the industrious insect. In *Henry V.* he says:—

> 'So work the honey bees;
> Creatures that by a rule in Nature teach
> The art of order to a peopled kingdom.
> They have a king and officers of sorts,
> Where some, like magistrates, correct at home;
> Others, like merchants, venture trade abroad;
> Others, like soldiers, armed in their stings,
> Make loot upon the summer's velvet buds,
> Which pillage they with merry march bring home
> To the tent-royal of their emperor,' &c.

In Shakespeare's description of the economy of a bee-hive, there was much that they now knew to be incorrect; but the passage was so rich in poetic beauty, that they must not be disposed to be too critical on that ground. The same poet reflected in strong terms on the manner in which bees are usually destroyed for their sweets, for in another of his plays he says:—

> 'How quickly nature falls into revolt,
> When gold becomes her object!'

Kirby mentioned above 220 species or varieties of the bee to be found in Great Britain alone, but on that occasion they must confine their attention to the domestic or honey-bee. In every prosperous colony there were, at one period of the year or another, three classes of inmates—the queen, the workers, and the drones. The queen might be considered the parent of the hive, whose only duty consisted in laying eggs in combs prepared by the workers. Her fecundity was immense; in the height of the breeding season she had been estimated as being capable of laying 3000 eggs per day, but probably about 1500 per day was the average that prevailed in stocks of ordinary strength in the variable climate of England. Wherever the queen moved, her subjects—the workers—made way for her immediately, turning their heads towards her, offering her attentions in the way of food and cleaning, and gradually backing out of her way when she desired to move to another part of the hive. The lecturer then referred to the working bees, and stated that he had known of swarms which must have contained fully 30,000. It had been ascertained that 4500 bees weighed 1lb., and he had heard of swarms that weighed 7½lbs., or 33,750 in number. The workers had been proved to be imperfect females. Every egg, or grub, which in the ordinary condition would have developed into a worker-neuter, might, and did, under a different course, become a perfect queen. To bring about this it was only necessary that the insect be reared in a cell of different size and form, and be supplied copiously with a richer and more pungent food, known amongst apiarians as 'royal jelly.' On the death of their queen, the bees at once proceeded to transform one or more of the eggs of the common bees into a queen or queens—a wise and wonderful provision for the preservation of the species. After explaining the instructive method of ventilating the hive pursued by bees, the lecturer reached the latter of the three classes mentioned at the beginning of his discourse—the drones. He said that class comprised the male portion of the species, and their term of existence seldom exceeded four months. In a strong colony they numbered about 3000. In or about the month of August, after swarming was pretty well over, the drones, who were no longer wanted, were massacred by the workers. It was a curious fact that if the hive was without a queen, the drones were usually allowed to live. A drone might be distinguished by a close observer by the louder and more sonorous tone of its flight, compared with that of a worker. This was caused by the vibration of the wings—hence its name of drone. Mr. Fox said they would now briefly consider the causes and effects of the natural increase of bees by what was usually known as 'swarming.' For the benefit of those who might not be well informed on that subject, he proposed to sketch a short history of the progress of a colony from the commencement of its career. They would suppose that the hive had been peopled in the usual way, and that the bees had taken care to load themselves with honey from the parent stock before departure. As soon as well settled in their new habitation, a dense cluster was formed, attached to the tops and sides. All dirt and loose fragments were cleared away, and, all being favourable, comb-building was at once commenced, and probably one or more pieces of comb of a few square inches in extent were ready for eggs or honey in less than 24 hours. The season being propitious, the hive might be well filled with combs, mostly occupied with brood, in a fortnight. Large quantities of 'pollen' were carried in for the use of the brood; honey, also, was largely collected; but when they considered that it had been computed that it requires the consumption by the 'workers' of 20lbs. of honey for the secretion of 1lb. of wax, in addition to the amount used in connexion with 'pollen' for the rearing of the brood, they would not be surprised to find only a limited portion of the combs now occupied by honey. In a little over twenty-one days the brood was hatching out in large numbers, and soon the colony became so populous that preparations were, in many cases, made for 'throwing off' the swarm. Some drone-celled combs having been constructed and occupied with eggs, soon afterwards royal cells were commenced. In about six weeks after the swarm hived, it sent forth a swarm, which, provided the season was favourable, might also become a thriving colony. The old queen went with the emigrants, leaving only young princesses, yet in the larvæ state; so that it would be many days before a young queen could emerge from her cell, and take her position as queen-regnant. The lecturer then proceeded at some length to relate his experiences of the industry of bees, stating that on one

occasion, in one of his apiaries, he had counted 75 bees enter, laden with pollen, into a single hive in one minute, and a friend had told him that he had counted 110 in the same space of time. After describing the difficulties often experienced in hiving a swarm, and explaining the various methods to be adopted for securing the insect treasure, the lecturer touched on the practical management of bees, and concluded a most interesting discourse by urging his hearers, while in the pursuit of their daily avocations, to keep their minds alive, and attuned to appreciate all that was beautiful, lovely, and wonderful in creation; so that they might ever be ready to feel their minds led to look from Nature up to Nature's God.

The lecture was interspersed with diagrams illustrative of the various stages of bee-culture, and at its close a hearty vote of thanks was passed to the lecturer.

THE DUNDEE BEEKEEPERS' ASSOCIATION.

The Schedule of Prizes offered by this Association to be given at their great show commencing September 7th next, was the subject engaging the committee on Saturday evening, the 22nd ult. The several matters were respectively discussed and determined on, and the schedule ordered to be published, a full report of which will appear in our next.

THE KNOWING BEE.

If born within a waxen cell
Fate made me for a bee,
I should take care the nurses knew
My claim to royalty.

I'd eat away each neighbouring cell,
For royal jelly cry,
And make the hive a very——well
You'd guess it by-and-by:

With all a youngster's cheek you'd find
Me tell my royal ma,
She might make up her royal mind
To pitch her tent afar.

And yet, methinks, the life were slow
About the combs to cling
All days but one, and never know
The joys of wandering.

In truth I'd be no royal she
To lay eggs all my life;
Still less I'd choose a drone to be,
And chance it for a wife.

But as a happy working bee,
(Yet not a bee to work),
I'd eat my honey craftily,
And all my toil I'd shirk.

I could not in a unicomb
Have all my actions spied,
But in some humble cottage home
Would all the summer bide.

And when September came I'd sleep
All through the happy days,
And in the night a watch I'd keep
For fear of rustic ways.

And when the lantern hove in sight,
The brimstone and the spade,
To sting the foolish, selfish wight
I should not be afraid;

And waking up a chum or two,
By some known way we'd wend
To apiary kept by true
And scientific friend;

And with a gift of nectar choice
Find out a friendly hive,
And rouse it up with hum and voice
To hint I was alive.

But asking first if late, foul brood
Its hated trace had shown,
And how my hosts were off for food,
And whether draughts were known.

And so to hybernate at ease
Till wintry cold had passed,
More soundly than more active bees,
To wake the very last.

And prove that, though a 'busy bee'
Wears out with toil and strife,
A knowing one may happily
Prolong his lazy life.

W. Greatheed.

AN ADDRESS TO SPRING.

A Very Seasonable Rebuke.

Ham. 'The air bites shrewdly—it is very cold.
Hor. It is a nipping and an eager air.'—*Hamlet.*

'Come, *gentle* Spring! ethereal *mildness*, come!'*
Oh! Thomson, void of rhyme as well as reason,
How couldest thou thus poor human nature hum?
There's no such season.

The Spring! I shrink and shudder at her name!
For why, I found her breath a bitter blighter!
And suffer for her *blows* as if they came
From Spring the Fighter.

Her praises, then, let hardy poets sing,
And be her tuneful laureates and upholders,
Who do not feel as if they had a *Spring*
Pour'd down their shoulders.

Let others eulogise her floral shows,
From me they cannot win a single stanza,
I know her blooms are all in full blow—and so's
The Influenza.

Her cowslips, stocks, and lilies of the vale,
Her honey blossoms that you hear the bees at,
Her pansies, daffodils, and primrose pale,
Are things I sneeze at!

Fair is the vernal quarter of the year;
And fair its early buddings and its blowings—
But just suppose Consumption's seeds appear
With other sowings?

For me I find, when eastern winds are high,
A frigid, not a genial inspiration;
Nor can, like iron-chested Chubb, defy
An inflammation.

Smitten by breezes from the land of plague,
To me all vernal luxuries are fables,
Oh! where's the *Spring* in a rheumatic leg,
Stiff as a table's?

I limp in agony,—I wheeze and cough;
And quake with Ague, that great Agitator;
Nor dream, before July, of leaving off
My Respirator.

What wonder if in May itself I lack
A peg for laudatory verse to hang on?
Spring mild and gentle!—yes, a Spring-heeled Jack
To those he sprang on.

In short, whatever panegyrics lie
In fulsome odes too many to be cited,
The tenderness of Spring is all my eye,
And that is blighted?

Thomas Hood.

* This is how James Thomson, author of 'The Seasons,' invokes the Spring.

Correspondence.

*** *These columns are open to Subscribers, so that their queries, replies, correspondence, and experiences, may be* fully *and* faithfully *recorded; and for the discussion of all theories and systems in Bee-culture, and of the relative merits of all hives and appurtenances, that the truth regarding them may be ascertained. The Editor, therefore, must not be expected to coincide with all the views expressed by the various writers. All Correspondence is addressed to the Editor.*

INTRODUCTION OR EARLY HISTORY OF BEES AND HONEY.

The natural history of the honey-bee has been the marvel of all ages from the time of Adam, the greatest naturalist the world ever produced, who well knew her history when he named the bee 'Debōrah' (דְּבוֹרָה), which, in the Hebrew, means, 'she that speaks;' and the bees' speech is both as sweet and as wise as that of her namesake Deborah, whose wondrous song of victory is written in the book of Judges. Adam knew that the bee was able to speak, and teach proud man, with his boasted intellect, many a wise saying, if he was only willing to learn at her school, and so he gave her that name. This was 4004 B.C.

The history of bees is found written in hieroglyphics in the pyramids of Egypt, and on ancient tombs long before writing was discovered, and this proves that the natural history and management of bees occupied the attention of man at the earliest period of which we have any record. Surrounded by a boundless variety of living creatures, he would naturally be led to notice their habits and economy; and no part of the world of insects would be more likely to engage his attention than the honey-bee. Honey would, in all probability, constitute one of his earliest luxuries; and as he advanced in civilisation, he would, as a matter of course, avail himself of the industry of its collectors by bringing them as much as possible within his reach; and by this means he would take an important step towards an acquaintance with entomology. But the progress made by our earliest progenitors, in this or any other science, is involved in the obscurity and uncertainty necessarily appertaining to the infancy of society and the difficulty of writing its history in hieroglyphics.

The first indication of attention to the bees' natural history is contained in the Old Testament, where it is mentioned in connexion with honey and wax in no less than twenty of the books. In Gen. xliii. 11, the patriarch Jacob, in giving directions to his sons on going down into Egypt a second time, tells them to 'take the best fruits of the land' with them, literally that which was praised the most, or 'the song of the land,' and among others he names 'a little honey.' The things enumerated, as we are informed, grew well during a drought; and as a famine now prevailed, would be more highly appreciated in Egypt. Besides, we are led to the belief that honey was an article of commerce previous to this time (Gen. xxxvii. 25, and inferences drawn from Homer and Herodotus at a later date). The whole of the twenty books conclusively prove the care that was taken of the bees, and how highly their produce was appreciated; and in Solomon's Song, iv. 11, Christ's love for the Church is beautifully expressed, 'Thy lips, O my spouse, drop as the honeycomb: honey and milk are under thy tongue; and the smell of thy garments is like the smell of Lebanon.'

The records of its first progression are, however, entirely lost, and no regular history of this science exists prior to the days of Aristotle (330 years before Christ), who under the auspices and through the munificence of his pupil, Alexander the Great, was enabled to prosecute with the greatest advantage, for the time in which he lived, his experiments and inquiries into every department of natural history. Alexander felt so strong a desire to promote this object that he placed at the disposal of Aristotle a very large sum of money, and in his Asiatic expedition employed above a thousand persons in collecting and transmitting to him specimens from every part of the animal kingdom.

Aristotle is therefore to be regarded as having laid the first foundation of our knowledge of that kingdom. He must likewise have derived great advantages from the discoveries and observations of preceding writers, to whose works he would probably have easy access. No individual naturalist could, without such assistance, have produced so valuable and extensive a work on natural science as that which Aristotle has bequeathed to posterity. And though the opinions of himself and his contemporaries have been transmitted to us in an imperfect manner, and abound in errors, still he and his illustrious pupil, Theophrastus, who succeeded him in the Lyceum, may be regarded as the only philosophical naturalists of antiquity, whose labours and discoveries present us with any portion of satisfactory knowledge.

Prior to their time we read of the philosopher, Aristomachus, of Soli in Cilicia, and of Philiscus, the Thasian, having devoted many years of their lives to an investigation of the manners and habits of bees. The contemplations of the former are said to have been almost solely occupied by these insects for fifty-eight years, and the latter spent so great a portion of his time in the fields in pursuit of the same object as to have acquired the name of Agrius. Both these great bee-masters left behind them, in writing, the results of their experiments and observations; but the original works have been long buried in oblivion. However small the contribution of knowledge which we have derived from these ancient worthies, they must have greatly aided the progress of their favourite science, and are, at all events, evidences of the zeal with which apiculture was prosecuted in their day.

About three hundred years after the time at which Aristotle wrote, his observations on the honey-bee were embellished and invested with a species of divinity by the matchless pen of Virgil, in his fourth Georgic (35 B.C.), and it excites feelings of regret that poetry, which, for its beauty and elegance, is so universally admired, should be the vehicle of opinions that are founded in error.—Wm. Carr, *Newton Heath Apiary, near Manchester.*

(*To be continued.*)

THE STANDARD FRAME.

I am sorry to see that the question of a standard frame seems to be at a standstill, as I cannot but think the adoption of such a frame would greatly tend towards what I take to be the object of all who have the good of the pursuit at heart—the raising of bee-keeping into an industrial occupation which can be pursued on ordinary principles of trade, with a good prospect of profit.

Take, to illustrate my meaning, the case of a dairy-farmer, who takes a farm and invests some hundreds of pounds in buying stock and farm implements. He will look mainly to his dairy produce and his calves, for both of which there is always a ready sale, to pay him interest on the capital invested; and when he retires from business can always depend upon getting back a large portion of—if not more than his capital—by the sale of his farm implements, and of his stock, which if he have been long in business will probably have increased to as much as his farm will carry. Now, if for dairy-farmers we read bee-farmer, we shall find that the latter invests his capital in hives, bees, and apicultural implements—such as Extractors, Supers, &c. (= stock and farm implements); that he looks to his honey (= dairy produce) and his swarms (=calves) to return him interest for his outlay, which no doubt they would do; but that when he gives up bee-farming there is little chance of his getting back the capital he invested in stocking his farm by the sale of his stock-in-trade; and I venture to think that this is principally owing to the fact that every one uses a different-sized frame, and that consequently the hives of one apiary are of little use to another. As long as this is the case capital will not be attracted to the industry, but bee-keepers, even though previously skilled in the business, will begin in a small way, and be content to increase the number of their stocks by putting their swarms into hives of their own pattern, which, however good in principle, will not, when the apiary is broken up, find a ready sale, not because of the pattern of the hive, but because, as I believe, of the size of the frame differing from that used by others, and thus we shall seldom see bee-farming pursued as a matter of profit, because the loss on the sale of the stock-in-trade at any time is so great as to amount to nearly the loss of the capital invested, unless, as said above, the business has been running for a number of years at a rate of profit sufficient to enable the farmer to repay himself the capital invested, besides pocketing annually a reasonable percentage thereon. If bee-keeping be really a profitable pursuit, there must be a price at which it will answer to buy established stocks; but so long as every such purchase introduces a new-sized frame to the apiary, bee-keepers will be so unwilling to submit to this inconvenience, that this price will be little, if any more, than the value of the bees and comb for transferring into the hives used by the purchaser, a mode of proceeding which must militate greatly against the interest of the buyer as well as the seller.

The argument that the free interchange of hives and combs would tend to propagate disease is no doubt entitled to weight, but is not more applicable to bee than other farming; no doubt the moving of cattle from place to place tends to spread foot and mouth and other diseases, yet the stopping this movement, except on an emergency, and as a temporary measure, would put an end to the trade altogether.

I venture to hope that the British Bee Association will yet see their way to recommending a standard frame for general adoption, not debarring hives containing other frames from winning prizes, at all events at first, but giving out that, *cæteris paribus*, the preference will be given to such as take the standard frame; and should the frame thus introduced meet with general approval, those who now buy hives first, and then swarms to stock them, will be willing to give something more for established stocks in standard-frame hives, which, by swarming the first season, as they may fairly be expected to do, will begin at once to repay their cost, and put their possessor in as good a position at the end of the first year, as he would have been at the end of the second had he adopted the usual plan.—H. Jenner Fust, Jun., *Hill, Gloucestershire.*

FRAMES.

I would say a word or two on the frame question, which you appear to wish, and think decidedly the same sized frame is not adapted to all localities. The largest hive I use is 10½ inches square and 10¼ inches deep; frames ¼ inch less, and from my experience, it is quite large enough for this locality; and as to position, I believe there is no real objection to the frame being placed cross-ways from side to side. I have used, and still use them both ways, and think if one is better than the other it is from side to side, and, as I think, more convenient than the other; my idea in placing them so was to make the back of the hive moveable, which I have done. The first frame nearest the back is made stronger and larger than the ordinary one, and fills up the whole space of the hive. A pane of glass is let in, which otherwise would be filled with comb; and this frame can be taken out, or when the back is off, drawn back one inch without taking out, making ample room to move the frames. I would say the largest amount of honey I ever had from one stock was from a hive of this description; and of the two first swarms I had last year, on 12th May, one of them was from same description of hive.—P. *of Warwick.*

P. S.—I have been thinking since writing the foregoing that at the Exhibition models of articles of small value might be advantageously admitted without fee from members. There are many little contrivances, I doubt not, which it would be to the advantage of the public to make known, and think myself more credit is due to such things than the production of monstrous supers from our most favoured localities. Perhaps the matter might meet your views, and if so, you could do something towards forwarding it.

IDEAS FROM AMERICA.

I received the January and February Nos. of the *British Bee Journal* in due time, and I can say that it is a valuable journal to the bee-keepers of America, as it is a change from our own journals in the sub-

ject matter. One thing I must commend in the *British Bee Journal*, that is, its articles are from able writers, and the vain repetition of new beginners is avoided, which has become so common in our American journals.

Feeding bees.—I have tried many plans for feeding, and do not find any way equal to the dry comb to feed in. First take a board to lay your comb on, and incline it forward so as to let the excess of syrup run off into a pan set underneath. Now take an empty tin fruit can, perforate the bottom full of holes with a 6*d.* nail, as full as you wish, now have syrup ready, by being made milk warm (or nearly so); with one hand hold the can about 20 inches above the comb, and with the other pour in it the feed as fast as needed, so as to keep the can half full, move the can around over the comb until full, fill the comb on both sides, then suspend it same as in the hive, and let it drain. There is not half the danger of robbers as any other way, and it saves a large amount of feed.

Cyprian bees.—After much trouble and expense, I imported two Cyprian and two Smyrnian queens from Count Cori. I think they were the first imported into America. They came all right until they reached this State, when they went to the wrong office. I did not find them for two weeks, and they had starved. I am very anxious to get more, and your proposed plan is an excellent one. Now I will take six of these queens as soon as ready, at your terms, *provided they are pure.* I will be at Philadelphia at our Exhibition in September, when our National Bee Keepers' Association meets, and if possible I would wish to receive them there. I suppose there will be some people coming from your city about that time, and if they could be sent with them, it would be much safer. I suppose I shall learn what is being done in the matter through the *British Bee Journal.*

I have owned bees for 20 years, used frame-hives for 13 years, have tried many different hives, but at last have gone back to the Langstroth Frame, 17⅝ by 9, outside measure, suspended on a ⅞-inch rabbet, ten frames to each story, two stories high.

Your friends are for a uniform size in frames. Well, that subject was discussed in this country at great length; but at last, every one used the frame he preferred, and that was an end of it as far as an adopted size went, but one good came of it, people learned what were the requisites for the different climates. For the Northern States 12 by 12, for Canada West 10 by 13, for Middle States 10 by 14 to 9 by 17, Southern States 9 by 17⅝, and double stories. Your climate is equal to our Middle States.

I wish you would come over to the meeting of the National Bee Keepers' Association, and see the display of honey, &c.—W. B. R., *Louisiana, U.S.A.*

BEES FOR NEW ZEALAND.

Land and Water publishes the following letter from Mr. S. C. Farr, of New Zealand, to Mr. F. Buckland:—

'The ship *Orari* arrived in Lyttelton on the 18th inst., from which, through the kindness of the Hon. J. Hall, I have received your very kind consignment of bumble bees, but am exceedingly sorry to inform you that not a single insect survived. I have not yet seen Mr. Hall, but heard, through Captain Fox and the second steward, that every care had been taken of them by Mr. Hall, who in the cold weather took them into his own cabin, in which he burnt a lamp, whereby the temperature was maintained at 51 degrees, and I was also informed that they were never subjected to anything below 50 degrees during the whole voyage. This being the case, the loss, I think, cannot be attributable to cold, but most probably to the long confinement, for on the 84th day out, and when the box was tapped by the hand, an instant buzzing was heard, thus proving that, though this attempt has failed, it is not impossible to obtain them by the more expeditious route, *viâ* Southampton. Only the other day we heard that one of the Melbourne steamers made the passage out in forty-five days. From there to Lyttelton would take nine or ten days, say sixty days from England. This, I think, would prove successful, and I am quite sure our Society would be very glad to bear any reasonable expense in the experiment. Those packed in dry grass partook of the food up to the last day they were heard, while those on the other side of the box had not taken any for a long time; and upon examination I found those in the latter place quite dried up to a mere shell, while in the other some were quite moist; in fact, the finding of one near the top of the grass quite soft raised hopes that I might find some nearer the bottom in a torpid state only. This was not realised: all were dead. Still I have no doubt that were another batch packed in the grass as before, and sent by the route suggested, all uncertainty of success would be removed.'

[We are confident that cold was not the cause of death, the temperature not having been below 50 degrees; and would suggest that in a future trial the temperature be kept to 40 degrees, to ensure dormancy, or at least inactivity. Cold alone seldom kills bees.—Ed. *B. B. J.*]

BEE-KEEPING IN PERTHSHIRE.

I have no doubt you will like to hear how things are moving with us in the far north of Perthshire. Over 600 feet above the level of the sea, you in London will wonder how bees can live in such an outlandish place as this; yet they are living and living like, for they are doing very well, although the weather is much against them. In fact, I can't say we have had any what you would call bee weather this year. About the end of last month we had a good day or two, but on the 2nd of this month we had an inch of snow, and a fine day or two followed; then on the 11th we had from 10 to 12 inches of a fall, which covered the ground for nearly a week, when a few good days brought them (the bees) out to their work in right glee; but yesterday and to-day the wind has got round to the north again, and brought winter back. All the hills to the north are covered with snow. Not very like swarming weather, indeed. I have no doubt but you in London will be beginning to prepare for your swarms by this time. I am happy to say the Ligurian queen which I bought from you when up at the Crystal Palace Show last September is doing well. On the 7th of this month I saw her young out taking an airing, which indicates that all is well, and I hope will continue. They appear to be very healthy little things. Breeding commenced here about the middle of March, and a good number of young bees have

been added to the stocks since that time, although the weather has been very much against them.

I see in this month's *Journal* that some bee-masters have a difficulty in getting their bees to take the artificial pollen; with me this is a very easy matter. The pollen I give is fine German flour, pea-meal (commonly called Glasgow meal), and a little corn flour, all mixed together; this they seem to take before anything else that is offered them. I see, from the *Journal of Horticulture*, that Mr. Pettigrew goes dead against the principle of giving artificial pollen. It may not answer very well where he is living, but with us here, where there is very little to be got at any time of the year, they (bees) require a little help. The other day I put out some old comb with pollen in the cells, and in a short time the bees had it nearly all taken out and carried off within hives, so eager were they for it. For a day or two previous to this I had stopped giving the artificial lot. Seeing them so anxious for it, I again put out the straw skep with the shavings and mixture, when hundreds of the little millers were at work as before. I really hope that a change of weather will soon come, so as one may have an early swarm or two for the Show. It will be about the end of June or the beginning of July before we can look for any in this quarter.—Highland Bee-keeper, *Struan, April 22nd.*

BEES IN IRELAND.

But few bees are kept in this neighbourhood, although our climate is mild (perhaps with too much moisture), and heather as well as gorse abounding on every side. The only hive I have seen used in the neighbourhood is the old oval-shaped straw skep, or one made of timber, by simply nailing a few pieces of inch-board together, and adding a roof of the same material.

In obtaining the honey, the bees are invariably destroyed by suffocation, and when sold the average price seems to be about 6*d.* per lb. When obtaining my first colony last September, I gave 16*s.* for it, the bees with their store, and a common straw skep, weighing about 30 lbs. By the beginning of last month the hive had become very light, but by regularly feeding them with a syrup of brown sugar and oaten meal, they are now strong and vigorous, and without further care seem able to forage for themselves.

I am anxious to see our 'busy bees' more humanely treated, and by establishing a few colonies in frame-hives, showing the few in my neighbourhood who keep them, that by their present old-fashioned manipulation they are only destroying the goose which lays the golden eggs.—Wm. Sillifant, *Heathfield House, Ballinhassig House, Co. Cork, 6th April*, 1876.

THE SEASON,

1876, so far as it has gone, has been most unpropitious. It was the 1st of April before our bees got a proper airing, but from the 1st up to the 8th we had delightful weather, but since then winter has come on with a dash again, the thermometer on the morning of the 12th standing at 23°. Notwithstanding the very protracted and untoward season, the hives appear strong; and although February and March were so extremely cold, hundreds of young bees sported themselves on the front of nearly all the hives; thus, in spite of the cold, breeding has been carried on. I have only lost one hive; the doorway had become choked with dead bees, and it appears the rest were stifled to death; and although there appears to have been a great mortality shown by the dead bees in front of hives, still I believe it is not so great as it might have been had the weather been finer and allured them out to die at a greater distance from their homes, where they would not have been seen. With fine weather, although the season is late, bees will be quite early enough, or as early as in the average of years; but to-day (April 13th) the thermometer stands at 18°, and snow is falling fast and thick.—A Lanarkshire Bee-keeper.

APIARIAN DISASTER.

I have a grievous disappointment to report this time. When I was obliged to spend the winter on the Continent, I took every possible care to prepare the bees for the cold weather, joined colonies to strengthen them, and took no honey from them, for as they had been to the moors there was abundance for all. Now, on my return, I find but nine hives alive out of thirty-six. I had left home with the most perfect satisfaction on my mind that none would suffer from any fault of mine; and on opening and examining them, I find in all the twenty-seven departed ones that the dead bees have been in number so reduced that no doubt they were unable to keep the heat in the hive up, whilst nearly all the honey left them in autumn is still there—some above them, some on the same side, where the little clump, as big as a man's fist, have died. All the Italian queens received from you are among the dead. I felt extremely downhearted about my loss, and have now, in consequence of it, from 200 to 300lbs. of honey to dispose of, all in frames, and sealed up. —J. G. Kirsten, *Bridlington, Yorks, 6th April*, 1876.

[Query—Is not this another case illustrative of the uselessness of old bees for wintering?—Ed. *B. B. J.*]

FABLE.

A grasshopper, half-starved with cold and hunger, came to a well-stored bee-hive at the approach of winter, and humbly begged the bees to relieve his wants with a few drops of honey. One of the bees asked him how he had spent his time all the summer, and why he had not laid up a store of food as they had. 'Truly,' said he, 'I spent my time very merrily in drinking, dancing, and singing, and never once thought of winter.' 'Our plan is very different,' said the bee. 'We work hard in the summer, to lay by a store of food against the season when we foresee we shall want it; but those who do nothing but drink, and dance, and sing in the summer, must expect to starve in the winter.'

DO QUEENS STING?

So far as I have seen remarked, this has always been answered in the negative; but my own experience is that they do sting, as on several occasions I have been stung by queens; their sting, however, does not pierce the skin, as does that of a worker, but seems to be used more in the way of a brush spreading the virus on the surface, which immediately becomes very irritable and inflamed. The piercer of the sting of the queen-bee is a little curved near the point, which appears to have been wisely ordered, because had it been otherwise there would have been a danger in a conflict between two of both succumbing to each other's stings, as we often see with two workers. While writing on the stings of bees, it may be worth while remarking, for the benefit of the novice, that the sting of the bee is not a single, but a compound member. I mention this from the fact that I have observed in the *Journal of Horticulture* for April 6th a statement by Mr. A. Pettigrew, where he says, 'The barbs on the point of the sting of a bee are a wonderful provision, though they do not appear to act in the body of another bee.' What a pity Mr. Pettigrew does not inform himself of the real state of the case before he sets it forth to the world! The fact is, the bee has the piercer, or the sting proper and the fangs, the latter of which are furnished with barbs only: the former is used only to pierce the hole, and the fangs follow with the poison. I observe also in the same article he attacks the Rev. L. L. Langstroth, when speaking of his 'bee-bob' (which has been tried in this country, and said to answer admirably).

When speaking of the invention of the 'bee-bob,' Mr. Pettigrew says, 'Some of the American writers on bees are foolishly extravagant and fanciful;' and goes on to say, 'This is perfect nonsense, and is the outcome of a very fanciful gentleman.' Had Mr. Pettigrew quoted at the same time, and commented in the same terms from his *Handy Book on Bees*, where he advises to tame bees with a 'scare-crow or potato boble,' I might have overlooked his criticsms on our cousins on the other side of the Atlantic; and I think it would be unfair to allow Mr. Pettigrew to pass without calling him to account, because in my opinion one chapter in Langstroth's contains more common sense and real practical work than Pettigrew's whole *Handy Book on Bees*, which is simply a rehearsal of the opinion and management of bees by the ancients, as it contains nothing new, at least this is the opinion of—A Lanarkshire Bee-keeper.

INTERCHANGE OF FRAMES.

While I would leave it to experts to discuss the propriety and the proportions of a standard frame, I would like to call the attention of bee-keepers in general to the fact that with a little trouble the frames of any hive can be accommodated within any other hive yet made, and that even this summer frames may be freely interchanged amongst bee-keepers and between their different hives.

The whole difficulty arises from the mistaken idea that the top bar of a frame must necessarily be the top frame bar in the hive into which it is exchanged. If the principle of a moveable comb-bar (as exemplified in the *Lanarkshire* hive) is recognised, the whole difficulty vanishes. If the top bar should exactly fit in between the two sides of the frame to which it is to be added, let a little wooden fillet be bradded on to each side of the larger frame at the proper distance from the top, and the smaller frame can then be slipped in and rest upon these fillets. If the added frame will not reach from side to side, let the one end be rested, as above described, and brad on to the under side of the larger frame, at the proper distance, a bit of wood thick enough to have a rabbet checked out of it, to carry the other end of the inner or smaller frame. If the empty frame that is to receive the other be prepared beforehand, the slipping the latter into its place is the work of a minute, and it may either be retained whole, or have the sides with the under rail removed with a sharp saw, the combs being first freed by passing a knife between them and the portions to be removed.

If the added frame be the larger, its sides must be removed, the top bar shortened, and the comb reduced to the proper dimensions to fit into the frame of the hive it is to occupy, suspending it in the same manner as before.*—Thos. Buchan Sydserff, *Ruchlaw, Prestonkirk, 10th April*, 1876.

UNITING STOCKS—POLLEN.

Things are not prospering in this part. I united most of my stocks last autumn, two or three together, but I have now only one stock alive; it seems strong, and I feed it, but cannot persuade the bees to take the pea-flour; they are carrying in the pollen of flowers, so I hope all is well.—M. H. Sherwood, *Worcester*.

[The state of affairs in your district backs up our theory that keeping old bees through winter does not pay. No matter how many are united in autumn, they are mostly 'spent:' and although they might by stimulation have been enabled in the milder season of autumn to rear a batch of young bees, they could not keep life in themselves during the rigour of winter—nor, if they did, could they produce young bees in the spring. The old-fashioned bee-keepers have found this out during the past season especially.

When natural pollen presents itself, the bees will not take the artificial. It may be said of meal as of fruit, that bees will not touch them when they can get anything better.—Ed.]

BEE LOSSES.

Just a few lines to tell you how our little favourites are going on.

In the first place, I will tell you of the cottager, whose bees have suffered more this winter than any other winter I know of. I have inquired of many persons, and one intelligent man has handed me the following statement: out of eight bee-keepers, three

* The bars and combs from bar hives, as the 'Stewarton,' 'Straw Storifier,' &c., may in this way at any time be transferred to a frame hive.

have lost all their bees; one has lost six stocks out of nine, and he has since told me he has lost one more; three have lost three each of theirs; and one has lost some, but he was unable to find out the number; and in a village not more than two miles distant, it is supposed that seven out of every ten have been lost. There is not a bee-keeper of more than one stock that I know of that has not lost one or more stocks. And now for myself. I am sorry to tell you that I have suffered as much as the cottager. In the autumn I had nine stocks, six black and two Ligurian; but at the time of writing I have only two black and two Lignarian. One I lost to-day has about 5 or 6 lbs. of honey in it.—W. C. PUNNETT, *Tonbridge, April 20th.*

ITALIAN WEATHER.

I am sorry to hear the weather in England is unfavourable to the bees. Here, on the contrary, is all that could be desired. Truly, we have had some cold days recently, but nothing to hurt to any great extent. The colza, now largely cultivated here, looks beautiful, and the bees have taken all possible advantage. So much is this the case, that to prevent swarming I have already had to super my hives, such is the quantity of honey already stored. One of my stocks in town has swarmed this morning; the first known this season. We shall soon begin artificial swarming; these are likely to be many and strong. All bids well for a good year at present.—AL. V. DI S.—*Milan, April 13th.*

EARLY SWARM IN HAMPSHIRE.

On Saturday, April 22, 1876, a fine swarm issued from a hive, the property of Captain P. P. Martin, of King's Somborne, Hants, and was safely secured.

ECHOES FROM THE HIVES.

Marley Villas, Market Drayton.—'This is rare weather, now, for the bees. I am feeding with bags of pea-flour and combs filled with syrup. I find they want constant attention to replenish. I cannot understand why it is some persons' bees will not take the pea-flour: I know mine do with a vengeance.'—T. CLEVERE JONES, *April 5.*

Euston Cottage, Woodchurch Road, Oxton, Birkenhead.—'With pleasure I comply with your request for full postal address, given above, also enclose P.O. order for next year's subscription, with good wishes for the continued success of your *Journal*: it has been the source of very great pleasure, as well as instruction, to me. The little knife arrived safely, and with it I gave the syrup easily without a cloth over the bottle's mouth. I made and tried the paper crocuses some few days ago; but with as little success as with the shavings. The little creatures are gathering pollen in as fast as they can, which may account for their neglect of the flour.'—Miss MACHELL.

Renby Grange, Tunbridge Wells.—'My bees are doing well, thanks to feeding them, otherwise I think they would have all died, as they have hardly any honey left. My groom has lost all his.'

Bishop's Stortford.—'I have twenty stocks in good order for coming harvest, not having lost one; but, of course, had to feed liberally last autumn, and am doing so now. Mine are all in one house (a decagon), so it is not any trouble to feed; it has been very trying for them here till the last day or two, and now they are making up for lost time. Nearly all around me have lost their stocks for want of feeding, and not understanding how to do it.'—G. T.

Wheeler Street, Maidstone.—'The only good lot of honey obtained in the year about here is gathered by the bees from the fruit blossoms, at least so far as my experience goes. I am very sorry to say that nearly all the cottagers in this locality have lost their bees this winter, one having lost seventeen out of twenty, and several *all*. My stocks are all alive, *i.e.*, seven. Thanks to advice giving in *Bee Journal* from time to time.'

Trowbridge, Wilts.—'I shall follow your advice, and unite the queenless stock with another. This will be the only stock out of six I shall lose this winter; but I believe it to be only through the use of the quilt that I have saved the others. I cannot induce my bees to take artificial pollen, and I have tried most of your suggestions. They seem, however, to be able to get a pretty good supply from the country.'—E. C.

Edingthorpe, North Walsham.—'My eight stocks of bees are all alive and rejoicing in the shavings and pea-flour.'

Offley, Hitchin.—'I have followed your advice concerning the hive which I wrote to you about. All now seems well with them. This beautiful weather has cured all signs of weakness; and much work is being done in all my hives. I inclose P. O. O. for 10*s.* 6*d.*, my subscription for the ensuing year, and with it I would tender you thanks for your prompt advice to me on several occasions; also for the many lessons I have learned from your valuable *Journal* during the year that I have read it.'—P. H. P.

Hayward's Heath.—'My bees are in splendid condition. At the end of September they had scarcely a pound of honey, but plenty of comb; I therefore fed them till the combs weighed over thirty pounds, and then left them for the winter. In the early part of last month I began again with a little barley-sugar, but no artificial pollen, as this is a famous district for the willow, and the bees appeared to me to get all they wanted from that source. There is now so much life and work in the hive that I quite expect to have a good return for my trouble, not only in pleasure but in cash.'—H. H.

Alvechurch.—'Terrible weather this for the poor bees. A friend at Worcester writes to tell me she has lost ten stocks out of eleven.'—J. P.

Thirsk.—'My hives—ten—I am happy to say have all survived this trying winter, and seem all strong and healthy. Two that I transferred last autumn into wooden hives have done excellently well with the quilt, and have some nice combs of honey still left. We are having perfect weather now, but I hear that many hives in this neighbourhood have perished.'—E. M.

Dalkeith.—'My bees have scarcely ever got out this season until the beginning of this month. I never experienced such a month of March, nevertheless they seem healthy, and are making the most of these few fine days we have had; feeding is the order of the day, wishing you still more success.'—A. A.

Bourton-on-the-Water.—'There has been great destruction among the cottagers' bees here, some have lost all their stocks, others nearly all; and when I speak to them about feeding those that remain they do not think it worth while to buy sugar for them. I look forward with great pleasure to the descriptions of the internal arrangement of the bee-hive promised in the next volume of the *Journal*, as any information with regard to bees and their work is most interesting.'

Tullochleys.—'I hope the circulation of the *Journal* is monthly increasing: it is a valuable paper, and many a

bee-keeper will be the better of the many valuable hints on feeding which are, from time to time, given through its pages, more necessary at present than at any other season of the year. Many a stock of bees is at present at starvation point, owing to the continued cold stormy weather, and if help is not given most succumb. This is the worst spring for bees I ever remember. The poor creatures have scarcely had a good fly this season, cold stormy weather has been the order of the day. The first few days of this month were very fine, so fine that the happy bees thought summer was come, and one of my stocks actually swarmed. But on the 8th the cold again reappeared, and ever since the weather has been terrible. While I am writing the rain is pouring down in torrents, accompanied with a cold north wind. Everything here is very late—gooseberry-bushes only coming into blossom. Farmers are almost despairing of getting the seed into the soil, very little being sown in this quarter yet. I hope we have seen the worst of it now, and that better days are in store. With reference to the Standard "frame" question, my frames measure,—depth 10 in., width 15½ in. top-bar 17 in. I use the Lanarkshire Frame Hive and your own Prize Hive of 1875.'—A. J. A.

Arley near Bewdley.—'I am happy to say that the quilt arrangement has quite answered my expectations, and it has kept all my bar-frame hives perfectly dry and healthy. I have, however, a fixed comb collateral hive, consisting of a stock-box and two side-boxes. I allowed the stock-box and one of the side-boxes to remain for the winter, and am sorry to say that the comb in this side-box (which contains about 10 lbs. of honey) has become exceedingly mouldy, with here and there a dead baby-bee. I have cut out these dead bees and also the *worst* of the mouldy combs, and fitted the remaining comb (most of which contains honey) in the other side box, which side box I have fitted with bar-frames. Will you allow me to take this opportunity of thanking you for the information and amusement you have given me in the past numbers of the *Journal*, and to express the sincere hope that your success may long continue? The few remarks and simple illustrations on the anatomy of the bee I think have been very instructive, and now that your readers have received a considerable amount of practical information, do you not think that a little more descriptive anatomy would be acceptable to them? A scientific friend of mine has asserted that he does not believe that bees digest the honey before they deposit it in their cells, and I have not been able to prove the contrary.'

[What our correspondent wishes is in train, and will be included in our description of the 'Mysteries of the Bee Hive,' which will run through the present volume, and for which we crave the patience of our readers. Bees do not digest, or in any way alter, the nature of the honey or syrup they gather and deposit in the cells, their honey-sacs are merely the vessels in which they carry what they collect.—Ed.]

Blantyre.—'Hereabouts vegetation is sorely destroyed. Strawberry and kail-plants are as if they had been burned. We have never had so protracted a season. Still, I hope we shall have a good honey year, and best of all, a social meeting of bee-keepers.'

Solihull.—'Allow me to offer you my sincere congratulations on your very successful arrival at the end of your third volume, and my best wishes that you may as happily continue your most useful and pleasant publication for many more volumes.'

'Some of my neighbours complain of heavy losses during the winter notwithstanding there was a considerable weight of honey left for them.'—*Blandford, Dorset.*

Middleton in Teesdale.—'I would like to have the fourth volume of the *British Bee Journal* sent to me as usual, for I may just say I like it very much; and your big sunflower is a success; and if I had a thousand hives I don't see there would be any difficulty in getting them to take artificial pollen.'

Mount Street, Chapel Fields, Coventry, April 18.—'Many stocks of bees have been lost in this neighbourhood during the last winter, and some within a week or two from this date. Through following your advice, as given in the *British Bee Journal*, as to feeding, &c., during the last trying winter, I have carried my five stocks in straw-skeps, and one in a box hive, safely through, all of which seem to have healthy queens, as pollen-gathering has been going on merrily in all, when weather permits, which has, alas! been seldom during this changeful and inconstant spring. I tried both corn and pea-flour, and found the bees would take both readily, when the crocuses first opened; but as soon as the willows began to blossom they would not take either. Would it not be possible to keep a reserve of queens to supply in the winter old stocks, or deficiencies in the spring? I have never adopted the moveable-comb hives on account of the expense, though I have kept bees for the last sixteen years; but should like to do so, if I could get the bars, as I could make the box readily. I may say that I have never experienced so bad a summer as the last, except when I first commenced, and lost my first stock and its swarm.'—C. S.

[Attempts have many times been made to winter queens in nuclei, but not with sufficient success to warrant the practice. Our junior will send you as many 'frames in pieces' as you please for 2*s.* per dozen, but you must send the exact internal dimensions of your boxes.—Ed.]

Cressy Cottage, Samerton, Foliat, Plymouth, April 17.—'The receipt for barley-sugar and also for the syrup I do not consider good, as I tried both, being very particular in putting the written quantities and following the directions. In making the barley-sugar, instead of putting the syrup on a *hotter* fire as soon as the water has evaporated, it should be placed over a *slower* fire, and in one or two minutes it turns gradually from white to lemon, from lemon to orange colour, or straw colour; and it is done. On this I had fed my bees all the winter; and for the benefit of others I advise, in making the barley-sugar, the fire *not* to be too fierce. The syrup was too thick, pounds of sugar settling at the bottom of the jar; and in placing the pickle-bottle over a hive the next day even it had begun to crystallize, and at the end of a week, or less, there was scarcely anything but crystallized sugar left.'

[We are greatly obliged for the correction as to barley-sugar, but we gave *our* method. The receipt for syrup was also *our* own, and we never depart from it except when a difference in the quality of the sugar renders a little more water or boiling necessary. Experience soon teaches how to correct any deviation from the intended result.—Ed.]

Belvoir, Grantham, April 19.—'The variable weather is very bad for the bees this spring, and many in my neighbourhood are in a sad plight; but I find, since the August (1875) Show at Grantham, a desire for more knowledge about bee-keeping to be everywhere apparent. That Show was like what a warm spring day is to our pets—gave them a thorough rouse-up. May it go on and spread out to something useful!'—T. R.

Somerset.—'Thanks to your plan of gentle, stimulative feeding and to the use of the quilt, my bees have passed through the winter in splendid condition, and are now awaiting their harvest. But with "snow on the ground and blossom on the trees," as the writer of a very pretty sonnet in to-day's *Spectator* puts it, they still want care and feeding. A neighbour of mine lost ten stocks out of eleven from starvation and want of ordinary attention. Many persons in neighbouring parishes have lost all or nearly all their bees, and the demand for stock and swarms is already brisk. In some cases at nearly 50 per cent advance in prices. So a little judicious outlay and forethought pay well.'—C. T.

Queries and Replies.

QUERY No. 152.—Now I want to tell you a little how I am getting on, and ask some advice. I have been following your instruction almost *literally* ever since I was fortunate enough to meet with your very valuable publication; and I thank you many times most heartily for what I have learnt from it, and also from you by letter direct. Bee-keeping with me is a pastime rather than a business; but I am anxious to set an example to my neighbours, and consequently to *master* all the difficulties connected with their scientific as well as successful management. Until very recently no one here had heard of any other method than the 'let-alone' and 'sulphur-pit' systems, but I think we are improving, and I don't despair ultimately of convincing a great many of the error of their old ways. My stocks are all tolerably strong;—thanks to slow feeding and artificial pollen—*stronger* than I have ever known them at this time of the year. One stock which I commenced to feed at the beginning of February is so full of bees that I almost fancy they are in swarming condition.—1. Is it too early to put up a super? 2. When is the earliest time I could make an artificial swarm? 3. Do the bees commence thus early to make new comb, or is it not yet hot enough for the secretion of wax? 4. Is it time to enlarge my bar-frame hives, that is, by taking away the partitions? 5. How many holes of the feeding-stage do you recommend to give to a *new* swarm on starting to help it to fill its hive with combs? Will a large number of holes have a tendency to make them (the bees) lazy? 6. Can you give me an idea of the value of a super of honey-comb per lb. if taken off in May? I suppose it would be more valuable than later in the season? 7. The weather has been delightful during the last week, and I have used the recommended '*pic-nics*,' which have been eagerly sought after and the bottles soon emptied; but I notice, since then, the bees care more for the '*pic-nics*' than for the pea-flour. Is this as it should be? Will it not induce them to fill up their combs with syrup and stop breeding? I also notice that two or three of the stocks are always the ones to get most of the syrup. The bees, too, seem *very* excited and try to rob one another. As a consequence, fighting goes on. Indeed they seem to prefer the easier method of obtaining syrup, or honey, if they can get it, to the trouble of finding it in the fields. One of my stocks, indeed, has killed two stocks which were rather weak, and would have carried away all their stores too, had I let them; but they left 15lbs. of beautiful honey in one, after having worked at it four or five hours. I took the comb and some of that honey, and putting them into my bar-frame, gave them to some of my bar-frame hives. 8. One word more about the Extractor. I have had no experience whatever with any kind and don't know how they should do their work; but I am perfectly *delighted* with the simplicity of your invention, and only wonder it never was brought out before, and I firmly believe it has a very brilliant future before it. However, for trial, yesterday I attempted to extract the honey from a piece of the comb of one of the hives that I have just told you was robbed; it was last year's comb and fresh-looking, but the honey would not come. So I put it down in my mind that *no* extractor will do anything of the kind at this season of the year. 9. I shall be glad of the *Leaflets* when published. 10. Do you hear any more of the Bee Association for Devon? 11. Is it decided *when* and *where* to hold the Annual Bee Show this year?

Apologising for taking up so much of your time.—JAMES HAMLYN.

REPLY TO QUERY No. 152.—It is (April 8) too early to put on supers, as at this period bees are not able to gather more than they require for their daily wants, so would not store any surplus; and because the addition of the super space would permit the escape of the heat of the hive, which ought during the early breeding season to be carefully husbanded.

2. Artificial swarms should not be made until drones normally appear, even though spare queens may be on hand to give to the driven stocks.

3. Undoubtedly bees could make comb at this or any other time, provided they were well supplied with food, and protected from the outer cold of our climate; but it is unnatural to force the labour upon them, except during the season of breeding and ingathering.

5. It is impossible to make bees even appear lazy, provided they be kept breeding. The loss of a queen, and a failure in raising a successor, will dishearten them, and give them no cause for labour; but still they will work, and we have repeatedly found hives in autumn with not more than a hundred bees and drones, yet with nearly every cell filled with honey or pollen. If bees store a stock-hive too rapidly, the queen cannot deposit the proper number of eggs; and the stock, instead of increasing as it ought when ingathering, will diminish, and presently become too small to swarm, or do anything else. This is what is called laziness in bees. Two holes is about the right number to feed a swarm through, but a little judgment should be exercised, as the size of the swarm has an influence.

4. It is much too early to enlarge hives. A spell of cold weather after the enlargement would be highly detrimental. The old proverb, 'One swallow does not make a summer,' is nowhere more valuable than in apiculture. Half the want of success in scientific bee-management is brought about by over-eagerness to multiply or manipulate the bees before they are able to take care of themselves.

6. A super of honey in May, gathered, as it would be, from fruit-blossoms, ought to realise 2*s.* 6*d.* per lb. at the lowest computation.

7. Feeding, except to swarms and weak stocks, is unnecessary when the fields and orchards yield supplies. Artificial pollen is always neglected when natural pollen can be obtained. The pic-nic, except as an occasional treat, is not 'recommended,' for the very reasons you assign, although we frequently resort to it to save the labour of feeding a hundred stocks individually.

8. Thanks for your testimonial to the value of our LITTLE WONDER. It is seldom the honey from combs of a former year's growth will be persuaded to leave the cells, especially when cold, in cold weather, but for all practical purposes our eccentric little friend will beat all others out of the market.

9. Other *Leaflets* will appear, but with so much correspondence the time is doubtful.

10. W. N. Griffin, Esq., of Rock House, Alphington, is secretary to the Devonshire Association. See Report on another page.

11. It has not been decided, but the Secretary is corresponding on the subject.

W. P. T., *Ontario, Canada.*—Your subscription for Vol. IV. came duly to hand, and with much pleasure we hear of your great success; we regret that your letter is marked 'private.'

OUR WANT AND SALE COLUMN.

WANTS may be advertised at 2*d.* per line of eight words, for one insertion, renewable in succeeding months, for 3 months, without alteration, for half price. Replies must contain stamped directed envelope, or they will not be forwarded.

No advertisement must contain more than sixteen words. P. O. Orders to be made payable to C. N. ABBOTT, office of *British Bee Journal*, Hanwell, W., London.

No.

228 Two Carr-Stewarton Body Boxes, been used, straw. 7*s.* 6*d.* each.

229 Two ditto, supers, new. 7*s.* each.

230 One Huber Leaf Hive, good as new, 21*s.*

231 One pair Neighbour's Sectional Supers, new, 5*s.*

234 Two Neighbour's Supers in sections. Quite new, 5*s.*

236 Home-made Hive, Quinby frames, two division boards, collateral principle, super cover and floor-board (cheap) 15*s.* 6*d.*

237 Walton's Extractor, in frame, &c. takes frames 13 by 18. Photo forwarded, 2*l.* 15*s*

239 A Stock of English Bees in Woodbury Hive, combs all straight, just the thing for Ligurianising, 2*l.* 2*s.*

242 Six Float Feeders, 9*d.* each, and 10 Pint Feeding Bottles, 3*d.* each.

243 Several strong stocks of Black Bees, in flat top straw, from 15*s.* to 21*s.* each. Lincolnshire.

244 Wanted.—Strong, healthy skeps of Black Bees. Weight no object, if full of bees and plenty of comb.

246 Honey.—About 40 lbs. of purest drained nectar, from supers from the apple orchards of Herefordshire, in white jars of about 2 lbs. each, at 2*s.* per lb.

247 Honey.—A few glass jars of splendid Honey and Comb from Devonshire supers. Very choice. Per lb. 2*s.* Glasses, 1*s.* each, may be returned.

248 For Sale.—Starling's new 4*l.* Honey Extractor. 3*l.* 10*s.* will be accepted.

250 Pure heather and clover Honey (cold drained) 2*s.* per lb. in small tins, package free.

261 Bee Boxes, of japanned tin, ventilated (been used), for carrying fumigated or driven bees from condemned stocks. London. 2*s.* each.

262 Mellilot Clover Plants, per dozen, 2*s.*

271 150 lbs. of pure run Honey, in tins containing 25 lbs. each, 3*s.* each charged for the tins, and the same allowed when returned.

273 Bound Vol. II. *British Bee Journal*, almost new, 8*s.* 6*d.*

275 Starling's 5*l.* Honey Extractor, almost new, 4*l.*

278 A Cottage Woodbury Hive, 15*s.*

280 One 10-bar Hive, double-walled, wide-shouldered, bottomless frames; reversible floor-board, four legs, handsome super cover and roof. Very cheap, 1*l.* 10*s.*

281 For Sale.—24 Vols. of the 'Journal of Horticulture,' minus 9½ numbers and 4 Indices, containing the valuable Bee experiences of the late Mr. Woodbury. Price of the whole, 1*l.* 10*s.*

282 For Sale.—A number of Straw, Super, and Stock Hives, not new but in healthy condition, also Bee-books, &c. Might exchange part for book offers. Salisbury.

284 Two Cheshire twin frame Nucleus hives, double cased and painted, not been used. Lee's make. S.D.R. 12*s.* 6*d.* each.

286 Three Stocks Hybrids in Woodbury hives. Near Leamington. 1*l.* 15*s.* each.

287 Excellent copy of Nutt's Collateral Hive, made by a first-class joiner. Carlisle. 1*l.*

288 Neighbour's Cottage Hive, windows, glasses, thermometer, &c. Carlisle. 15*s.*

289 Three strong healthy Stocks of Bees, 1*l.* 17*s.* 6*d.* each.

290 Two ditto, in circular wooden hives, lined with straw. Godalming. 1*l.* 10*s.* each.

291 One strong Stock in box hive. Godalming. 1*l.* 10*s.*

292 'Management of Bees,' by Samuel Bagster, numerous illustrations; also, 'Practical Bee-keeping.' The two books, post-free, only 4*s.* 6*d.*

WANT AND SALE COLUMN—CONTINUED.

No.

293 'Practical Directions for the Management of Bees to the Best Advantage,' by John Keys; also, 'Bees, their Habits and Treatment.' The two books, post free, only 5*s.* 6*d.*

294 For Sale, Nos. 1, 2, 3, 4, 8, 10, 17, of *British Bee Journal.* 1*s.* each.

295 'The Management of Bees,' by Samuel Bagster, 2nd edition. 240 pages. 40 engravings. 5*s*

296 'The Cottager's Manual,' by Huish. 104 pages. 2*s.* 6*d.*

297 'The American Bee-keeper's Manual,' by J. B. Miner. 350 pages and 35 engravings. 5*s.* 6*d.*

298 'An Enquiry into the Nature, Order, and Government of Bees,' by Rev. John Thorley. 2nd edition, 1765. 158 pages. 4*s.* 6*d.*

300 'A Complete Guide to the Mystery and Management of Bees,' by Rev. William White. 1771. 94 pages. 4*s* 6*d.*

301 'The Annals of Bee Culture,' by D. L. Adair. 1870. 62 pages. 3*s.* 6*d.*

302 'Progressive Bee Culture,' by D. L. Adair. 1872. 24 pages, 2*s.*

304 A new Carr-Stewarton Hive, with 3 boxes, crown board, and floor board. Manchester. 1*l.* 15*s.*

305 Phacelia seed, home grown. Leicestershire. Per oz. 1*s.*

313 For Sale.—3 Stocks of Bees in Bar Frame Hives. Frames without bottom rails. Sussex. 1*l.* 10*s.* each.

314 Sherrington Hive, new last year, filled with comb. Without cover. 18*s.*

315 Sherrington Honey Extractor. New, 1*l.* 5*s.*

316 Neighbour's Cottage Frame Hive. New, 5*s.*

317 Aston's Drone Trap. New, 3*s.*

318 *British Bee Journal* Nos. 1, 2, 3, 4, 6, 7, 8, 9, 10, 11, 12, at 1*s.* each; or 3*s.* given for No. 5 and Index.

319 Aston's Drone Trap. Never used. 2*s.* 6*d.*

320 Neighbour's Bee Book. 2*s.* 9*d.*

321 Bee-keeping, by the Times' Bee-master. Ireland. 2*s.* 9*d.*

322 Eight Zinc Bee-feeders, with mahogany floats, top glass, complete. 1*s.* each.

323 Woodbury Bar Hive, dovetailed, one inch thick, 10 frames, 2 windows, with hinged covers and floor-board complete. (Used under shed.) 10*s.*

324 Neighbour's 10-Frame Stock Hive, Straw, with wood frame, and one window and floor-board complete. (Used in shed.) 12*s.*

326 'The Bee-keeper's Magazine.' Vol. I., Nos 1, 4, 5. Vol. II., Nos. 3, 9, 10. Vol. III., Nos. 1, 2, 7. 1*s.* each, or 9 Numbers for 6*s.*

327 'The National Bee Journal.' Vol. IV., Nos. 8, 11, 12. Vol. V., No. 1. 1*s.* each, or 4 Numbers for 3*s.*

328 'Novice's Gleanings.' Vol. I., Nos. 1, 2, 3. Three Numbers for 2*s.*

329 Two Taylor's Dividing Hives, beautifully made with windows and bar-frames. 10*s.* 6*d.* each.

330 Swiss Bar-frame Hive. Painted, 8*s.*

331 Six Rye Straw Hives, workmanship guaranteed, cane-worked, locked stitch, turned wood feeding hole, rim top and bottom. 8½ × 16. Price 18*s.* Berks.

332 Wanted.—'Langstroth's Book on Bees.' Exchange given. Berks.

333 Wanted.—Some young Lime or Linden Trees. Send particulars to A. J. Anderson, Tullochleys Clatt, N.B.

334 Dry Puff-ball, post free, per packet 1*s.*, of F. S. Clutten, Fressingfield, Suffolk.

335 'Journal of Horticulture,' in good preservation, April 2nd, 1874, to September 23rd, 1875, inclusive, 10*s.*

336. Wanted.—Nos. 5 and 6 of *British Bee Journal*, 1*s.* each offered.

337. Three Stocks of Hybrids in square Bar-frame hives (Breen's patteros). Manchester. No. 1 Hive, glass back, 1874 swarm, 2*l.* 10*s.* No. 2, May swarm, 1875, 2*l.* 2*s.* 6*d.* No. 3, Second swarm, May 1875, 1*l.* 15*s.* 5*l.* 5*s.* will be taken for the lot.

338. For Sale.—A large number of frames of pure sealed honey-comb, invaluable for giving to new swarms, price 1*s.* 6*d.* per lb. Yorkshire.

339. Skeps filled with comb, dark, but healthy, 5*s.* each.

The Advertiser of Nos. 314, 315, 316, and 317, will oblige by again sending his address, which has been accidentally lost.

THE

British Bee Journal,

AND BEE-KEEPER'S ADVISER.

[No. 38. Vol. IV.] JUNE, 1876. [Published Monthly.]

Editorial, Notices, &c.

JUNE.

The sunny, but cold weather of the past month has been most unfavourable to the production of bees, and as a consequence swarms are scarce, and later than ordinary. The first three weeks of May brought out immense quantities of blossom, but the dry east wind made the nights too cold to permit the secretion of honey, and, except in favoured situations, sugar syrup had to be given to the bees to keep up their breeding propensity, and prevent the dwindling of stocks. Many that survived the rigours of winter have succumbed to the effects of the treacherous weather which has prevailed since the week next before Easter, the sunshine inviting the bees to the fields and orchards, and the cold wind preventing their return. The sacrifice of bee life from this cause has been immense, and from the continual loss of the foragers, honey has not been brought into the hives in sufficient quantity to enable unaided stocks to maintain their strength. Breeding has consequently slackened, and in many instances discontinued altogether, and the few remaining bees have, in numberless cases, deserted their hives on the first favourable opportunity, either joining other stocks or presenting themselves to their astonished owners as swarms of about the size of one's fist, frequently leaving sealed honey in their hives to be ransacked by neighbouring colonies. This latter process for a time prevents suspicion of desertion, but eventually leads to the conclusion that the stocks have been *destroyed by robbers*. Another common cause of loss has been the desertion of queens from their hives,—a vagary we can only account for by supposing they become disgusted with an inactive life at a time when they ought to be of the busiest, and which is doubtless due to the meagreness of the ingathering of honey. And this brings up a question which we have been more often asked this year than ever before—viz., what shall I do with my queenless stocks? But before entering on the best means of utilising them, we will point to an error which is often made through the discovery of a dead or moribund queen near the entrance of a hive. It is certainly feasible in such a case to suppose that she had been the reigning sovereign therein, and it does sometimes happen that bees become regicides, or, at any rate, that a queen is killed in her own domains; but far oftener the queen found outside, either on the alighting board, or on the ground, is an alien, a desertrice as before mentioned, seeking asylum in a more flourishing hive than her own—one sought to be thrust upon a *loyal colony* in lieu of their own but lately torn from them, or one of two or more newly hatched, and which has been fairly defeated in royal battle. We have found several queens outside strong hives of late, one notably, which was *encased* on the alighting board, yet upon examining the stocks it was found that—

> 'Snug in her hive the queen was alive,
> And buzz was the word in the island.'
>
> Old Song.

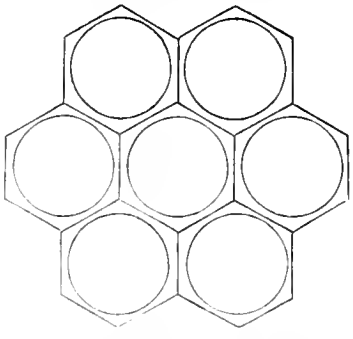
Utilising Queenless Stocks.—What can be more wretched or pitiable than a queenless stock of bees at a time when even, though brood be given them, every attempt to raise a fertile sovereign to the throne must, from the absence of drones, be useless. Giving them brood at such a time is weakening to the colony from which it was taken, and of little or no benefit to the queenless ones; indeed, should they raise queens which remain unfertilized, their latter state will be worse than the former, for they will simply wear themselves out in producing useless drones. Their case is indeed hopeless. Queenlessness in spring is seldom discovered in skeps until the busy season comes round, and the lack of pollen-carriers is observed, and it is then a matter of great difficulty to obtain fertile queens; and attempts to raise them in the queenless colonies are generally failures; for owing to the sparseness of drones, and the length of time after fertilisation (when effected) before young bees come to life in the hives, they will be found to have so dwindled in numbers as to be comparatively useless. In hives with moveable combs, the queenless condition of a colony can be readily ascertained at

the earliest consistent period, and steps at once taken to ameliorate its condition by uniting it with a stock having a queen.* It has occurred to us that the bees of queenless stocks at this time of year will be best utilised by adding them to hives from which artificial swarms have been driven. As we have elsewhere shown, the bees are of little use as nurses, so the building up of stocks by giving brood-combs to them must be profitless as well as tedious; but by the principle now advocated artificial swarms may be made much stronger than ordinarily, and at once furnished with the combs of the queenless bees, while the latter can be utilised and reinvigorated by being placed in the combs of the stock from which the artificial swarm has been driven. The plan then is simply to await until drones appear, and then make the respective occupants of a queenless and a full stock change their tenancies. Each set of bees must be kept on its own stand, and the hive of each given to the other, the artificial swarm will then quickly fill the broodless combs of the queenless bees, while the latter will act as heat-producers in the others' brood-combs, and prevent the possibility of loss through sparseness of bees, a casualty too common when driven stocks have been removed from their original stands. The young bees, which will hatch by hundreds daily from the combs of the driven bees, will speedily raise queen-cells therein, or, if possible, a queen or queen-cell may be given to them, but in either case we think the bees of the queenless stock will have been put to the best possible use.

THE MYSTERIES OF THE BEE-HIVE.

(*Continued from p. 4.*)

Having traced the bees to their hive, and shown how their cells are formed, we cannot but pause to admire the wondrous beauty of their arrangement, and the perfection of skill exhibited in their construction. Various theories have been started to show why the bees should make the cells hexagonal; but the true reason is, that no other shape would so well answer the conditions necessary to the perfect economy of material and labour everywhere exemplified in their work. If only isolated cells were required, they would doubtless be circular, as it is universally admitted that a circle is the largest figure that can be enclosed with a given line; but as for the purposes of the bees' existence they are required in great numbers, closely packed together, the circle has been departed from, but only so far as to ensure the greatest possible economy of the material of which the cells are formed, which, as is well known, is a secretion by the bees, elaborated in their bodies at a great expense of honey and physical labour. To illustrate our meaning, we have here placed together a group of seven circles, from which



it will be seen that if the cells were of that shape there would be a great waste of both space and material, for supposing the six around the central one to be in actual contact with it and each other, the interstitial wax required would be enormous in quantity, and most exhaustive to the bees in production, beside which all the space occupied by it would be lost for storage purposes. To obviate this, the bees have been instructed by their Allwise Creator to establish their foundations on the basis of circles, but to build their walls at tangents to them, to meet at points in the centres of their interstices. Thus there are no useless partitions between them, each side of every cell, except those on the edges of the combs, forms one side of another cell; and the three lozenge-shaped plates at the base of each cell (see pp. 2, 3, Vol. IV.) each form one plate of three other cells on the opposite side of the comb, for the centre point of the base of every cell (save those on the edges) rests upon the intersecting walls of three other cells at the back of it, thereby ensuring the greatest possible strength consistent with the small quantity of material used in their formation.

There are only five figures of which cells could be formed to be equal in size, and without interstices between them, viz. the triangles equilateral and right-angled, their doubles, the square, and parallelogram, and the perfect hexagon; and if these be separately drawn, a glance will show that the hexagon is the most comfortable in shape for the bees, and the most economical in other respects.

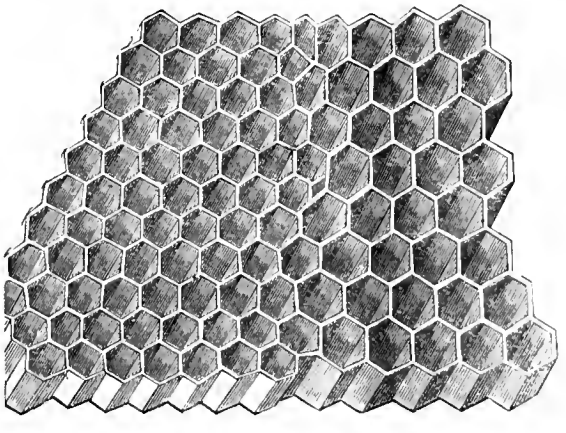
In the above illustration it will be observed that there are seven hexagons formed, but only

* Many bee-keepers give themselves much trouble in spring by endeavouring to obtain queens from dealers, whereas in ninety-nine cases out of a hundred they could purchase weak stocks of their neighbouring cottagers for a few shillings each, and by uniting both bees and queens to their queenless colonies, give renewed life and vigour to them.

six were drawn, the seventh or central one being a result of the splendid architecture adopted by the bees, and a striking proof of its economy, for *no other figure can be formed by so so few surrounding counterparts without interstices or exposure of its angles.*

'On books deep poring, ye pale sons of toil,
Who waste on studious trance the midnight oil,
Say, can ye emulate with all your rules,
Drawn or from Grecian or from Gothic schools,
This artless frame? Instinct her simple guide,
A heaven-taught insect, baffles all your pride.
Not all yon marshall'd orbs, that ride so high,
Proclaim more loud a present Deity,
Than the nice symmetry of these small cells,
Where on each angle genuine science dwells,
And joys to mark through wide Creation reign,
How close the lessening links of her continued chain.'
EVANS.

The cells in a hive are ordinarily of two sizes, the larger of which are called drone, and the smaller, worker cells, and when numbers of either are found together, they form drone and worker comb respectively. Sometimes it happens that both kinds of comb are built together in one sheet, and as the hexagons which they form are of different sizes, it will at once be manifest that the two kinds of comb cannot be joined together without the intervention of either some very thick irregular walls of wax, or some cells of irregular shape, and of the two evils the bees always choose the latter, which is the more economical to build, and affords additional storage-room when completed. The engraving illustrates the subject, it is a copy of



a piece of naturally built comb, the size and shape of each cell being accurately given, those on the right being the drone cells, and those on the left, the worker, and in the centre will be seen the irregulars, one small lozenge-shaped cell (?) being filled up with wax.

There is sometimes another kind of cell in a hive, called the queen cell, but for the present we will confine our observation to those before us, and endeavour to explain the purposes for which they were built, the cause of their different sizes, and the effect they have upon the future well-being of the hive. When a swarm is placed in an unfurnished hive, it usually has with it, in the honey sacs of the bees, sufficient honey to enable it to commence comb-building, and, as a rule, the reproduction of their own species being the first and chief object, they begin by building cells of the smaller kind (the worker) exclusively, in each of which, excepting a few occupied by honey and pollen, the queen will deposit an egg, which will produce a worker bee; and this goes on from day to day, subject at any time to change, until the bees have built as much comb as they can cover with their bodies and keep sufficiently warm to cause the eggs to hatch and come to perfection as young bees. In the meantime, however, it may happen that the foraging bees, *i.e.*, those of the swarm whose duty it is to seek honey and pollen, are enabled to obtain more than is required for the time being, and the queen having occupied all the available cells with eggs, the bees build those of the larger size in which to store their surplus, and according to the duration of the superabundant inflow of honey, so will the proportion and position of the worker and drone comb in a hive be determined, and the future of the hive governed. It may, therefore, be accepted as a fact that the presence of drone comb (more properly, *store-comb*) in a hive is accidental, since no one can know beforehand how much there will be, or where it will be placed in the hive, and sometimes its presence in the centre of the stock hive is highly detrimental to the well-being of the colony in winter and early spring.*

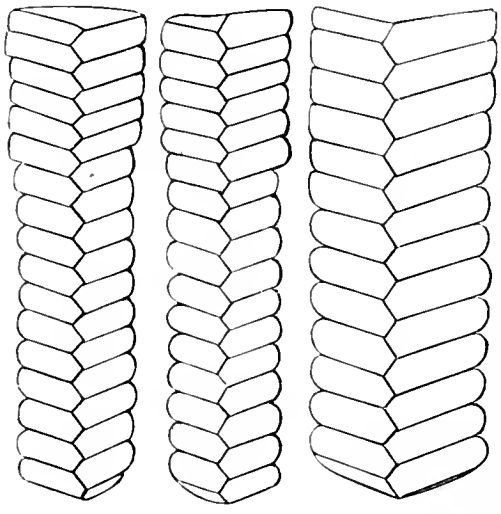
The purposes for which the cells are formed are—the reception of eggs and the nurture of brood; and the storage of honey and pollen for bee sustenance, and the difference in their size is due entirely to accident, for if a swarm be kept on short commons through stress of

* Last spring a stock of bees in a Woodbury hive was sent to us to have their combs straightened and rendered movable, in which we found two combs of drone cells extending diagonally across the hive, and as a consequence the queen and bees were huddled into a corner on one side of them, for bees cannot pack themselves comfortably into drone cells for wintering, they (the cells) being too large, while the other side was damp and mouldy. And in the spring the breeding space was limited to the corner of the hive, for the drone combs were a barrier; the stock could not gain strength sufficient to render drones necessary to them; so none were brought forward, and the queen would not pass the two empty combs and thus make two brood-nests in the same hive. The stock was consequently useless until the combs were replaced by those containing worker cells only, when it rapidly gained strength, and prospered. Drone comb is so often built in positions in the hive inimical to its prosperity, that we think a better proof of the value of the moveable comb system in bee culture cannot be adduced.

weather, or from other causes, it will build worker comb only.*

Now, since worker-bees can only be produced in worker-comb, anything that prevents or interferes with its production, militates against the ultimate prosperity of the colony; and, therefore, although swarms may in their first season become exceedingly heavy through a great accumulation of honey in their hives, yet as much of the comb in which it has been stored may consist of drone-cells, it is not always certain that the heaviest yearling stocks will be the best in after years. The reason of this is, that where there is an undue preponderance of drone-cells, there will be a corresponding paucity of worker-bees, and possibly a very large number of useless drones; but of these we propose to treat in a future number; it may, however, be accepted as a rule in profitable bee-keeping, that those stocks do best which have no drone-cells in their brood-nest proper, and which consequently rear no drones until there has been a vast increase in the number of workers.†

We have before stated that the cells are in double series, back to back, the base of each one forming part of the basis of others; and this arrangement when perfect, forms the comb, of which we give a sketch of a vertical section, showing the position of the cells as they are arranged in the hive. Now, the bees, in commencing, build the foundations of their combs at a distance of an inch and a half from each other (nearly) at the top of the hive, each comb being about an inch in thickness. There are, therefore, spaces of about half-an-inch between the combs, which may be likened to streets having shops, dwellings, and store-houses on either side of them. During the progress of the building, almost every cell, as quickly as it is formed, receives an egg; and until they have hatched and come to perfection, the full width of the streets is preserved, so that the bees may traverse every part of the comb, passing each other back to back without inconvenience. But when the first batch of brood has issued, the upper cells of the hive, and those on the outer edges of the combs, as also those forming the outer side-combs, are used for the storage of honey, and such cells are usually elongated before being closed, as shown in the upper part of the engraving, thereby reducing the width of the streets to about a quarter of an inch only, and leaving barely sufficient room for the bees to pass each other side by side. The elongation of the cells used for storing honey is in accord with the bees' habit of economising space and labour; but sometimes it tends to their disadvantage, for should there be a glut of honey during the early days of comb-building, the bees, instead



of laying out new foundations, and building new warehouses, find it cheaper to elongate those then built, and not until the great influx has abated will they begin anew, and by that time the outer combs will have become distorted and lumpy, and their symmetry destroyed.* The disadvantage arising from this exhibits itself when it becomes necessary to consume the honey thus stored, and to use the distorted cells for breeding purposes, for the bees are then obliged to reduce them in length, making a gap in their 'street.' This, however, they never tolerate, but fill with a curtain of comb-foundation only, or raise upon it a series of short cells which are useless as cradles for brood, and serve only as stepping-stones for the bees, that there may be no vacancy between them as they move with their backs to each other over the brood-cells. In a well-organised colony of bees, there will be found no admixture of cells in the comb; but the disturbing influences already mentioned, often cause patches of drone-cells to be interspersed amongst the more valuable worker-comb. The brood-nest should consist of worker-cells only, the

* This is particularly observable in after-swarms (or casts), whereiu the smallness of the number of workers prevents a great influx of honey in its early days, while comb-building is the order of the day; besides which, casts being principally composed of young bees, their duties, naturally, are within the hive, and hence the increase is limited and surplus storage seldom possible.

† Early drones are of considerable value in scientific bee culture, but their production is a hindrance to the colony, whose *strength* consists in its abundance of workers.

* Careful bee-masters, under the moveable comb system, frequently correct these distortions, by cutting them away to prevent the combs to be built next to them being crooked, in which case they would not be interchangeable. This, however, cannot be done in the straw skep, or simple box hive.

drone-cells being outside or around it, and according to the nearness to perfection in this respect, so will the colony be prosperous or otherwise.*

We will, however, proceed to examine a prosperous hive and note its progress; and the preparation for swarming which naturally takes place at this time of year, which we hope will be interesting to many who have not been hitherto enlightened on the subject.

A colony having wintered well, and having a good supply of both honey and pollen, will naturally desire at the earliest fitting period to increase in numbers, so as to be in readiness for the forthcoming season of flowers and blossom; and as soon as the days begin to lengthen, and the crocuses open their golden petals, the bees bestir themselves and venture forth in search of provender. And on the introduction of newly-gathered honey or pollen to the hive, they begin to feed and stimulate the queen, and in a few days her majesty will commence the deposition of eggs, laying perhaps a dozen on each side of a comb; and day by day the number will be increased by her laying others in the cells surrounding them. This, as may be imagined, takes place in the centre of the bees, in the warmest part of the brood nest, and at the beginning is very slowly proceeded with, for the bees in the hive are more or less aged, and have not the physical ability to prepare the food necessary for the infant brood. And as from the time the first eggs are deposited about twenty-one days must elapse before any young bees will come forth, the progress is very slow during that period, many bees dying from the enforced exertion attendant upon their nursing and feeding the young, but at the end of that time, when the young ones begin to come forth, the aspect of affairs changes, and life and healthy activity prevail,† the young bees take up the nursing, and as they daily increase in numbers, in proportion to the number of eggs deposited by the queen, so is she warranted in extending her brood circle. The first hatch of brood in spring, is usually confined to one of the central combs, but with the advent of young bees the nest is rapidly enlarged and the queen is soon busy with her pleasant labour. It will be evident that the young bees will hatch out of the combs nearly in the sequence in which the eggs were deposited; and as they come forth, adult bees put their heads into the cells, apparently to see that they are perfectly clean, and shortly afterwards the queen will come round, and making like examination, will deposit an egg in each cell *seriatim*, making a second course. She will then begin to deposit eggs in other combs, extending the brood-nest in all directions until every available comb is charged with eggs and brood, and the young bees hatching out by thousands daily supply so large a staff of workers that honey is brought into the hive more rapidly than it can be consumed, and then as a consequence, either additional room must be given in the hive, or the bees will fill up the cells with honey as fast as the young bees hatch out of them, and so prevent further oviposition by the queen, or there must be a period of enforced idleness until the population becomes sufficiently large to swarm.

Previous to this interesting event taking place, the bees take extraordinary pains to insure a successor to their sovereign, who will go forth with the majority of the population when the happy moment arrives, and bring about perhaps the most wonderful phenomena connected with the whole economy of bee-culture. It is an established fact, that the eggs laid by a queen-bee in worker-cells are from twenty to twenty-two days in coming to maturity as worker-bees, the time varying according to the heat of the weather and its effect in hatching the eggs into life; but by some subtle influence, these marvellous creatures completely change the nature of the larva, and so stimulate the springs of bee-life that what would have become a worker-bee or undeveloped female only in about twenty-one days, becomes a perfect queen in sixteen. How the wonderful metamorphosis is effected no one can with confidence say; but it is evidently the result of a combination of circumstances brought about by the bees themselves under a sense of urgent necessity, the details of which we must leave for a future number.

QUEEN-RAISING.

Every experienced bee-keeper will admit the value of surplus queens in an apiary, particularly where artificial swarming is practised, as their possession will enable him to at once

* The moveable comb principle enables the practical bee-culturist to correct the bees' errors herein, as the drone-comb may be cut out and removed for use in supers, and worker comb substituted, which the bees will readily adopt and fix in its place.

† It may be accepted as a rule, that aged bees, *i.e.*, bees (say) a couple of months old, are of little use except for honey gathering, and the help they afford in keeping up the temperature of the hive. Comb-building, the nursing of the brood, and the raising of queens, are duties which the young only seem fully competent to perform; thus, if a comb of eggs and young larvæ be given to a stock long queenless, the chances are that no queen will be raised, and that a great part of the eggs and brood will not be brought to maturity; but if a comb containing ripe and hatching brood, and as well as eggs and larvæ be given, the raising of a queen and the due evolution of the brood is almost a matter of certainty.

supply the driven stocks and prevent the loss of time consequent on each stock having to raise a queen for itself. Bee-keepers generally are aware that if a queen be removed from a stock during the breeding season, the bees have the power of transforming certain eggs that would ordinarily have become worker bees into queens; and nature shows the importance of early re-queening, by ordaining that the transposition of the worker egg to the perfect queen shall occupy about a third less time than it would have taken to produce the ordinary bee: and in cases of natural swarming, by providing that the wonderful change shall be in an advanced stage before the emigration takes place. Thus we find that when a swarm leaves its hive under ordinary natural conditions, there will be found several queen-cells containing embryo queens in various degrees of development, one or more of which will, as a rule, hatch into life in about eight days, and will become fertilised and prolific in about six days afterwards, thus losing the services of a queen for a full fortnight during the height of the breeding season. When artificial swarms are taken from a hive, unless at a time when natural swarming is being prepared for, the bees will have to *commence* the process of queen-raising, and under such circumstances the hive may be without evidences of the queenly presence for twenty-one days or more. Now, considering that on a moderate computation a queen in the height of the breeding season will deposit two thousand eggs per day, each of which will become a perfect bee, the loss of bees to the respective colonies may easily be calculated; in the one case amounting to twenty-eight, and in the other to forty-two thousands. These figures may seem romantic to the uninitiated, but to the *breeder* of bees for sale, they are too well understood to be neglected.* How to raise the largest number of queens with the smallest expenditure of bee life and labour is now our problem, and without further ado we describe the method we think the best.

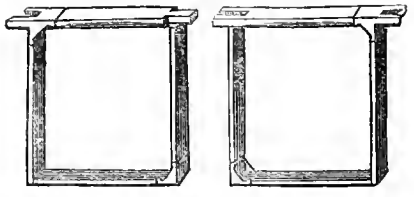
The first necessary in the interesting art is the possession of hives containing a large number of small frames, so arranged that they shall form a compact mass (?) of combs, capable of dismemberment, for fitting into small hives called nucleus-hives. Supposing the hives in present use to be Woodburys, each containing ten frames of an internal area of 13 inches by 8, it will be necessary to procure a large number of small frames of the slightest material consistent with firmness, each to be 6½ inches long, and 4 inches deep outside measure, and put four of them into each Woodbury frame, tying them securely with fine wire so that their weight when filled shall not displace the bottom rails of the larger frames. These small frames should all be filled with comb containing worker brood, and it must rest with the bee-keeper to determine in which way he will achieve this object. He may put ten large frames, containing forty small ones, with proper guides, into a hive, and let a swarm do the work; he may fill the frames with empty comb and place them in one or more populous hives, to be filled with brood, or he may at once fill them with combs containing brood cut from other convenient hives. The second method is the best, as there will be no loss of brood, as there would be in the third (by cutting), and there would be no drone comb in the frames as there *might*, and probably would be, if the first were adopted; but whichever method may be followed, we may now suppose that they are filled with comb and occupied.

The next desiderata* are the queen-cells, and if our manifold frame hive be strong (as it ought to be) we would dethrone its queen, and unite her to a newly-swarmed hive, so that queen-cells should be raised upon the small frames of comb; or we would wait for a stock to swarm, and utilise the queen-cells already raised therein; or we would deprive our strongest stock (it is always best to breed from best stocks), and wait for *its* queen-cells. In the meantime a third necessity arises—viz. the nucleus hives in which to place the small frames when *fit*, and these should be modelled after the fashion of the Woodbury, but should only be 7 inches from front to rear, 6 inches wide, and 4½ inches deep, inside measure, and having a ¼-inch rabbet at front and back. Each nucleus hive will require four laths 7½ inches long, ¼ inch thick, and of the width of those forming the small frames, to the underside of which the latter should be fastened with fine wire, that they may hang correctly therein. Another method of dividing frames for nuclei has been devised by Mr. Cheshire, which forms

* In our own practice, we have in favourable seasons taken as many as six swarms from a single stock of bees, and four and five have often been yielded. Of the six, three were sold for two guineas each, and the others at twenty-five shillings each, the latter for the purposes of Ligurianising, as described in our Crystal Palace Leaflet, No. 3—the only SAFE method for amateurs. We, however, import our queens for these purposes, as the pure fertilization of those bred at home, where black drones abound, is too uncertain to be profitable. Nevertheless, for the ordinary purposes of an apiary they are practically as valuable as any, the cross breed being undoubtedly the best honey-gatherers.—ED.

* Hives for queen-raising should be prepared in autumn, so that in the ensuing spring it would only be necessary to remove the queens to ensure the raising of a crop of queen-cells in the small frames.—ED.

a Woodbury frame into two for nucleus purposes. As will be seen, the top bars splice in the centre, and when the bottoms of the twain are bound together with wire they form *one*



which will fit into a Woodbury hive. This method avoids the necessity for the laths, but permits of the formation of two frames only, whereas that we have advised gives four to each full-sized frame, and has been long used in America with success.

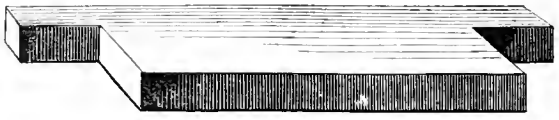
Having now the nucleus hives, frames of brood, and the queen-cells, we proceed to form the miniature colonies (or nuclei) of bees, whose duty it will be to bring the queen-cells to perfection. In doing this the difficulty consists in populating the nucleus hives with bees which will remain in them when taken from the parent hives and placed on new stands. It would be easy if the new stands were a couple of miles from the old ones, as then nearly every bee would would adopt its new home and be happy in it. And in this regard it is well to consider the advisability, when fitting up the parent of the nuclei, of placing it in a distant apiary while attaining maturity, that when the little colonies were brought home there might be no desertions from them. We are, however, to do our work at home, and with the Woodbury frames containing the small frames, as many of the small hives must be stocked as there are queen-cells, less one, which may be left in the parent hive, or should all the frames be required in a nucleus hive on the parent's stand. In stocking the nucleus hives, two of the small frames of comb (at least) must contain hatching bees, and one must contain a supply of food. Each small frame must be fixed to one of the laths by wires round it and through the frames' top corners, and they must be suspended in the nucleus hives at proper distances, four in each, the comb or combs of provender being next its side, and those containing the brood separated only by the usual half inch of space required by the bees for their nursing. While doing this the parent hive should be moved a few feet from its position, and the nucleus hive, while being filled, should stand in its place. None of the bees on the respective combs should be disturbed while being transferred to the nucleus; but as many as possible (compatibly) should be allowed or forced to enter it, and each—except the last two—on being completed, should have its entrance temporarily closed. The bees outside of it should then be brushed off, and it should be at once taken to a dark, but ventilated cellar, when the entrance should be unstopped, and it should be left in perfect darkness for two days. The last two nuclei, which will contain the remainder of the parent stock, should be placed about eighteen inches on either side of its entrance-position that the bees may be divided between them, and the now vacant hive removed to a distance. At night these last two should also be taken to the cellar and confined in darkness with the others, care being taken that they shall not be sufficiently close to each other to get on visiting terms. Now during the prescribed two days' confinement, a great number of young bees will have hatched out in the nuclei, which, with those that had not flown previous to the transfer, will be sufficient to take care of the unhatched brood, and the queen-cells (if any) that are in them. But when the two days have elapsed, and the nuclei are brought out and placed on the stands they are to occupy, which should be in a secluded part of the garden, a number of the bees from each will go back to the old stand, and these should be provided for by placing two other nuclei, similarly formed from other hives, but without any adhering bees, in the positions occupied by the last two previous to their removal to the cellar two days before. If, however, there should not be sufficient queen-cells on hand to stock the twelve nuclei proposed, one should be left in the parent hive at the first operation, and, as before suggested, only as many formed as would leave *one* for that contingency, in which case, on the release of the bees from the nuclei, the old stock would be strengthened and no harm arise. On the day after the nuclei have been set out, they should be examined, and should some contain two or more queen-cells, and others none, as will be likely to happen in following our instructions as to the number of brood combs to be placed in each nucleus, they should be equalised, by cutting them out of the one and splicing them into the other. The queen-cells under these conditions will be hatched out in due course, one in each of the nuclei and one in the parent hive, where they must be left until they have become fertilised and have stocked their respective nuclei with eggs.

FIXING WAX-SHEETS.

In reply to many correspondents we here show the appliance for fixing strips of wax to frames.

It is simply a piece of wood, of the length

of the top bar, shouldered, to allow the front (as shown) to lie along the bar near its centre.



All bars are not of one width, so it will be useless to give minute directions, as they would not in all cases be applicable; but, supposing the top bars to be $\frac{1}{2}\frac{0}{0}$th inch wide (as per gauge), the front projection should be $\frac{9}{2}\frac{0}{0}$ths wide. In use the frame is inverted, and the piece of wood, well wetted, is laid upon the under side of the top bar, when, as may be readily understood, the projection in front will almost reach its centre, while the horns at the ends will enable the operator to keep it steady. The wax strip is then laid along the front of the projection, which will be exactly along the centre of the bar; and by painting, or pouring molten wax along its bottom edge, it will be at once fixed to the bar. For painting the wax should be melted in a vessel of boiling water, on the top of which it will float, and may be laid on with a brush, or poured on with a spoon; but by far the easiest and cleanest plan is, to melt the wax in a wax-smelter, and pour it out of the small tube that runs through its spout.

BRITISH BEE-KEEPERS' ASSOCIATION: BEE AND HONEY SHOW, 1876.

The Committee, anxious to publish a prize-schedule as liberal as possible, solicit subscriptions to the PRIZE FUND from all those gentlemen able and willing to aid the cause of apiculture; as a nucleus the following donations are promised, viz.:—

Alexandra Palace Company	£25	0	0
Hooker, J. M.	1	0	0
Cowan, T. W.	5	0	0
Hunter, J.	1	1	0
Neighbour, A.	1	1	0
Hughes, W.	1	1	0
Jackson, F. R.	1	1	0
Edwards, C. H.	0	10	6

Further donations will be thankfully received and acknowledged. Donations may be made to the general fund, or for *special* prizes; in the latter case early intimation as possible will oblige, in order that the Prize List may be framed accordingly.—JOHN HUNTER, *Acting for Hon. Sec.*

BRITISH BEE-KEEPERS' ASSOCIATION.

Committee Meeting, May 23, 1876; present, Messrs. Cowan, Edwards, Neighbour, Hooker, Henderson, Hughes, and Hunter acting for Hon. Sec.; Mr. Cowan in the chair. The Minutes of the last Meeting were read and confirmed.

Mr. Hunter reported that he and Mr. Glennie, acting as a Sub-committee, had had an interview with Sir Edward Lee, the Manager of the Alexandra Palace, and had arranged with him to hold this year's Exhibition there in August or September next; details to be arranged. A telegram from Sir Edward Lee confirming this was read. It was then resolved that Messrs. Hunter and Glennie be requested to arrange details with Sir Edward Lee.

Letters from the Hon. Sec. to Messrs. Hunter and Glennie were read, in which he expressed fears of his inability to carry out the work of his office in consequence of the pressure of other avocations, and expressed his wish to resign. After a discussion, it was resolved, 'That, in order to relieve Mr. Cleaver, Mr. Hunter be requested to act as Hon. Sec. *pro tem.*, and Mr. Cleaver to intimate to the Committee his express intentions by their next meeting.'

In order that the business of the Association at this important season should be efficiently carried out, Mr. Hunter acceded to the Committee's request.

The Committee, hearing that the medals were at last completed, requested Mr. Hunter to see to their distribution forthwith.

EAST OF SCOTLAND BEE-KEEPERS' SOCIETY.

The First General Meeting of this Society was held in Lamb's Hotel, Dundee, on the 20th May. The Secretary reported that the Society had been fairly successful, in so far that upwards of seventy members had joined, and that nearly all the amount for the Prize Fund had been already subscribed.

Mr. Henry Lorimer, the President, gave a short account of the affairs of the Society, and introduced the subjects for discussion at the meeting, expressing regret that the Bishop of Brechin, who was to have addressed the Society, was unable to be present.

Mr. Raitt, the Secretary, then read a paper on 'Queens.' The prime importance of the queen in the apiary was pointed out, and bee-keepers warned that unless they made themselves conversant with the main facts in her history they could not but expect frequent failures. The various kinds of queens were then described,—fertile, unfertile or drone-layers, and fertile workers—how to get rid of the latter kinds, and how to supply their place with tested queens or with those newly hatched, sealed royal cells, or brood-comb. The various methods for discovering the presence or not of fertile queens, and of raising surplus ones, were fully described.

Mr. Glen, Arbroath, took exception to the statement that bees readily accept newly-hatched queens, and it was generally agreed that further experiment on this point is required.

The President gave an account of the conduct of a young princess towards those still in their cells. He had once an opportunity of observing for several hours a princess successively visiting several royal cells. Instead of the bees guarding these they always made way for the young queen, who continued to walk over and over the cell, now and again uttering the well-known call. So long as she remained on a cell no sound escaped from its inmate; but the instant that one in another cell piped she rushed towards it, the bees clearing the way for her. The moment she reached this cell there was silence within, and she would perambulate it as before until a call from another quarter hurried her off. So far as could be observed, there was no attempt on her part to tear open the cell, neither did the bees seek to obstruct her. She afterwards went off with a cast.

Mr. J. Stewart, Arbroath, then read a paper on 'Hives and Supers.' The old-fashioned skep and the brimstone-pit were mercilessly condemned, and the advantages of the bar-frame hive and sectional supers set forth.

The state of the hives in the neighbourhood was then discussed, when it appeared there had been great losses

since the autumn. One member had lost five stocks within the last few weeks. Others had queenless hives, and several had foul brood. From all sides came reports of backward stocks. Only those who had cared for their bees by careful feeding were able to report favourably.

It was agreed that all papers read should become the property of the Association, and should be handed about for perusal by distant members, or for reading at the meetings of branches of the Society; and it was arranged to hold a local meeting at Arbroath early in June.

The Secretary reported that he had addressed local gatherings of bee-keepers in several districts, and it was generally agreed that the Society ought largely to expend its efforts in this direction. Endeavours should also be made to get local Horticultural Societies to offer prizes for honey; and, as a start in this direction, Lord Kinnaird had authorized the Secretary to announce at the meeting at Inchture that he would give a handsome prize for honey at their next Flower Show.

An excellent bar-frame hive, of local make, was used to illustrate Mr. Stewart's paper, and the maker stated that he had as many orders on hand as he could manage to supply in the meantime. A section of super was also exhibited, with the method of fixing guides by means of the plaster block.

The next meeting of the Society will be held during the week of the Honey Show.

REVIEWS.

THE BEE-KEEPERS' RECEIPT-BOOK.

This is a collection of twenty-five receipts, of which the author says, 'As I have tried only a few of them—like an auctioneer's condition—"they must be taken with all faults, &c."'

The little work, consisting of fifteen pages, is evidently intended to be useful. Its contents include receipts, &c., for—Asthma—Bee products in the olden time—Cider, to make palatable—Cakes, Nos. 1, 2 Gingerbread Cake—Cold-cream—Foot and Mouth disease in Cattle—How to obtain Honey from Combs—Linens to glaze—Metheglin, Mead Nos. 1, 2—Mead Sack, Mead Cowslip—Pomade—Gargle for sore throat—Soap—Silks, to clean—Teeth, to clean—Vinegar—Wax, to prepare—Wax from old comb—The Cottager's wine—and Wash for the hair.

BEESWING'S ADVICE TO BEE-KEEPERS.

This is a closely-printed pamphlet of twenty-four pages, contributed originally to the *Hereford Times* by a lady. Published in the hope of benefiting the cottager it has been reprinted; but not having been written for profit, its authoress cannot afford to advertise it, and has appealed to us to give it publicity, which we cheerfully do. It is slightly whimsical, and not always correct, but contains much that is practically useful. Published at 3*d.* it may be had post-free for 3½ stamps of H., No. 70 Eign Road, Hereford.

An anecdote is told of a gentleman in Jamaica, who thought to make a fortune by importing British busy bees. The attempt was made, the bees were landed; the first year they were successful in gathering honey, but by-and-bye they dropped away, and the race died out. Why was this? When in England they were active,

'Gathering honey all the day
From every opening flower;'

in Jamaica they got lazy, had plenty of sugar-cane, and flowers full of sweet suction. As a consequence, they were not active, did not get sufficient exercise, and died out. Activity means life; want of exercise betokens speedy decay. This is true physically, morally, spiritually.

Correspondence.

*** *These columns are open to Subscribers, so that their queries, replies, correspondence, and experiences, may be* fully *and* faithfully *recorded; and for the discussion of all theories and systems in Bee-culture, and of the relative merits of all hives and appurtenances, that the truth regarding them may be ascertained. The Editor, therefore, must not be expected to coincide with all the views expressed by the various writers. All Correspondence is addressed to the Editor.*

A BEE-KEEPERS' ASSOCIATION FOR DROITWICH AND DISTRICT

I am very glad to be able to tell you that at last we are in a fair way of having an Association of Bee-keepers in these parts; and also, that there will be a Show of Apiarian Goods and produce at Worcester, in October, in conjunction with the Agricultural Society's Show that is then to be held there.

I have enclosed a copy of the proposed Schedule of Prizes, and shall be exceedingly obliged by advice and information from those friendly to the cause. I am sorry to say that we shall not have any live bee-manipulations take place, or any bees flying about, similar to what took place at Grantham and elsewhere last year; however, as we are favoured thus far, we must wait for the interest that is sure to arise to help on our plans another year.

The Apiarian Exhibition will be held in connexion with the Autumn Show of the Worcestershire Agricultural Society, October, 1876, and the following is the proposed

SCHEDULE OF PRIZES.

Class		Prizes. 1st.	2nd.
	HIVES.		
1.	For the best hive for observation purposes (left open for Worcestershire Society to find prizes)		
2.	For the best frame-bar hive . . .	40/	
3.	For the best skep or box hive for depriving purposes, suitable for cottagers' use .	20/	
4.	For the best and cheapest supers, for general use in an apiary . . .	10/	5/
	HONEY.		
5.	For the best super of honey, net contents 20 lbs. or over	15/	10/
6.	For the best super of honey, net contents under 20 lbs. and not less than 6 lbs. .	10/	5/
7.	For the best display of honey in the comb, for table use	10/	5/
8.	For the best display of run-honey, in glasses, containing from 5 lbs. to 10 lbs.	5/	
9.	For the best display of pure bees-wax, in cakes of not less than 1 lb. . . .	5/	
	MISCELLANEOUS.		
10.	For the best and largest collection of hives, bee-furniture, bee-gear and appliances (given by the Worcestershire Agricultural Society)	40/	20/

N.B.—All honeycomb and wax must be *bonâ fide* the produce of 1876, and gathered by the bees in the natural way, in the United Kingdom.

RULES.

Every person wishing to exhibit must send in his or her name and address to the Hon. Sec., with a fee of

one shilling, which shall be the entrance-fee for the exhibit in any one class, before the of August.

Any additional number of entries may be made afterwards, on payment of an additional fee of one shilling for each entry.

Entry-forms will be supplied upon application to the Hon. Sec.

Each exhibitor will receive a ticket of free entry to the Show.

G. H. WALL, *Hon. Sec.*,
Rashwood, Droitwich.

By whom donations and subscriptions will be gladly acknowledged.

ASSOCIATION FOR STAFFORDSHIRE.

Will you allow me to suggest that Staffordshire bee-keepers should combine to form a Union? I have seen in your *Journal* the names of several gentlemen in this neighbourhood, who are interested in the subject, and there must be others. Mr. G. E. Lewis, Queen Street, Wolverhampton, will kindly receive the names of those who are willing to join such a Union. We ought not to let another year pass without an exhibition of live and dead stock, at either Wolverhampton or Stafford Horticultural Show, or both, if the committees will consent.—WILLIAM J. FREERE, *S. Mary's Vicarage, Wolverhampton.*

WEST OF ENGLAND APIARIAN SOCIETY.

PROPOSED BEE AND HONEY SHOW AT WESTON-SUPER-MARE.

It has been proposed, if sufficient funds can be obtained, to hold a Bee and Honey Show at Weston-super-Mare, during the ensuing summer, in connexion with the Horticultural Society's Show. Such an exhibition would not only prove a great attraction to the town, but would also give many persons a better idea of bee-keeping.

The recent Apiarian Exhibition at the Crystal Palace, in Sept. last, proved such an attraction that it was visited by upwards of 30,000 persons in three days. The show proposed for Weston would be on a much smaller scale, but would, doubtless, prove most interesting and instructive to hundreds of persons. The Society is as yet young, and an earnest appeal is made to the public for funds to carry out its objects. A Prize Fund has been started to be offered at the proposed show, and subscription books will be found at most of the public libraries in the town. The Committee hope to be able to issue the prize list in June, and trust by that time sufficient funds will have come in to enable them to offer such prizes as will induce bee-keepers at a distance to become exhibitors.

Uphill, May 3rd, 1876. O. POOLE, *Hon. Sec.*

JOHN LONG'S COMB-FOUNDATION.

You have caused me to get completely swindled, and I think it right to tell you so. In one of the *Journals* (I have not got them beside me for reference), I think the December or January one last, you gave a great blow about 'Long's Comb-Foundations,' leading me, and I dare say others also, to believe that they were all but ready for the bees to drop the honey in; and from your glowing description I resolved to get possession of a few pounds; so I commissioned a friend of mine, an officer in one of the Atlantic steamers, to whom I gave 21*s.* (5$) to pay for 5 lbs.; at the same time I wrote to John Long, Box 6, Station C, New York City, to make up a parcel of 5 lbs. and hand it to my friend on his arrival, and he would see it cared for on its journey across the 'pond.' Well, when the vessel arrived at New York, the first, or almost the first, to step on board and inquire for my friend was John Long, with a nicely made-up parcel under his arm, which he said was for me; but that, in place of 5$, the price was 7½$. My friend paid the difference; and when asked where his place was, he replied, he guessed he would be found at the Exhibition till the Show closed. But judge of my surprise when I opened the parcel, and found—what? Certainly not artificial comb, but a lot of sheets of *plain* wax (a piece of which I enclose). It appears good enough in quality; but where, oh where, are the partly-formed cells? Now I think the least thing you can do is, to start direct for Philadelphia, hunt out the fellow, and hang him up, if not by the neck, in the *British Bee Journal* for a terror to evil-doers.

Weather still cold here. Bees making very little progress yet. Vegetation about five weeks late. Snow lying on the hills, and an east wind blowing. Could anything be worse?—JOHN WILKIE, *Gourock.*

[We are sorry for the mishap, but cannot think the fault lies at our door. We gave a true description of the comb foundation, a specimen of which we have sent to our swindled friend, and he must acknowledge it to be the most beautiful fabric ever produced. Judging from reports in the American Bee Journals, Mr. Long is not in good odour there.—ED.]

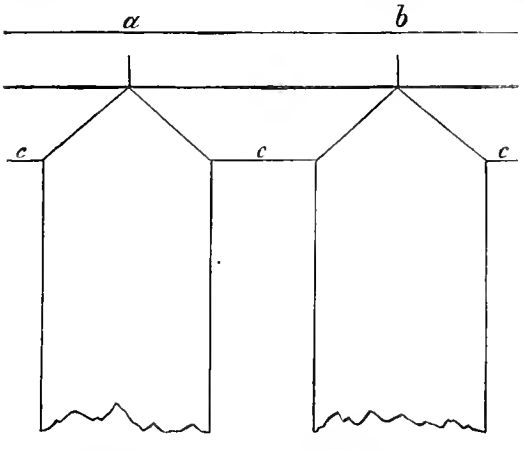
CONTRAST BETWEEN NATURE AND SCIENCE.

In these days, when collisions seem almost to be the rule and not the exception both by sea and land, and the more remarkable at sea where miles of space both to the right and left are available to avoid a collision between two vessels, by a slight deviation of one either to the right or left, Nature shows us how little man, with the aid of science, is able to be compared to her. One instance will suffice for our illustration. A swarm of bees in the air, in the limited space of some few cubic yards thousands of bees will be flying backwards and forwards, upwards and downwards, in all directions, and even bees not belonging to the swarm will be making a direct track through the flying swarm, and yet who can say he ever saw two bees come into collision, or fly against each other? It may be said a bee is so light an insect that a collision would not necessarily bring them down. Let any one stand in the way of a working-hive in their direct track home, and if one chances to fly against his face he will feel with what velocity the bee is flying, and with what force he is struck, quite sufficient if he struck another bee to bring both down—and yet who has seen such a collision? What may be the nature of the sense which enables bees to avoid flying against each other in such a limited space is not known; probably some of our apiarian friends, now the subject has been mooted, may be induced to make some observations and experiments to decide whether it be sight, sound,

or feeling. Still more remarkable is the effect which a windy day has upon a swarm in the air. The whole body of bees on the wing is swayed backwards and forwards, and yet no collision takes place. Enough has been said for our present purpose on this subject, and we hope it will not be said in vain, and that another unexplained wonder may be added to the many belonging to our old friend, the honey bee.—J. G. Desborough.

FRAME-ENDS.

I have cut the ends of my frames to points like this, to prevent the bees propolizing them to the back and front of the hive; and now as they rest on a zinc edge, *c c*, they work very easily. I have



no distance-guides, but make marks at *a* and *b*, where the frames are to touch, and find it a most convenient plan.—A. G. Burchardt, *Fulwood Park, Liverpool.*

EXPERIENCE—BEES IN TREES.

The present position of my hives illustrates the folly of boasting. When I wrote last month all seemed to be going on well, but in a day or two after one of them came to a sudden halt, and the few bees that ventured forth seemed hardly to know their own home again. I turned up the hive to see, if possible, what was the matter, and the angry buzz that greeted me showed that there were life and vigour in them yet; and the bees looking bright and healthy I gave them a little honey, which had been saved for an emergency, in a feeding-bottle at the top; but, notwithstanding, they have gone from bad to worse. I suppose the queen is dead; and as I have no other bar hives to supply the deficiency I shall transfer the combs to one, and add to them a driven swarm from a strong stock, which I hope to get ready as soon as you will send the frames.

Some six or seven years ago, in walking through the finely-wooded estate of a lady near this city, I heard, close to the junction of the roads leading to Baginton and Stoneleigh, the familiar hum of bees, and looking upwards saw great numbers flying in and out of a small hole in a large and apparently undecayed oak-tree, some fifteen feet from the ground. I have watched them each year since; but last autumn I did not see any trace of dead drones under the tree and no signs of life above, but have heard that they are strong and lively this spring.

A neighbour told me that some years ago a woodman, engaged in cutting down trees on the estate of Lord Aylsford, found a number of combs and live bees in a hollow tree; and the late Lady Aylsford caused them to be placed in front of Packington Hall, where they stood for some time; but whether any attempt was made to utilise them I cannot say.

Perhaps some of your other correspondents may be able to furnish particulars of bees which have taken to a wild sort of life.—C. S.

THE QUEEN OF SHEBA'S PUZZLE.

There is a story told in the East which is not unworthy of a place in your *Journal*. It illustrates the respect of David's peaceful son for the objects of your especial regard, and conveys, as bees so often do, a deeper wisdom than lies upon the surface.

The Queen of Sheba, being anxious to test to the utmost the wisdom of King Solomon, devised a series of subtleties with the object of puzzling him, in vain. At length she brought in her hands two bouquets, one of real, the other of artificial, flowers, made with exquisite skill. Standing at a sufficient distance—though what that distance was exactly the Eastern story-tellers do not say—she called on the king to pronounce by his wisdom which was man's work and which was God's. When his lords and astrologers had given up the task, the wise king commanded them to open the casemates of the Cedar Palace, and let in his bees. These at once, and infallibly, decided the difficulty for him; and, without moving from his throne to examine them, he learnt from his winged servants the real flowers from the artificial. 'There,' said the king, 'is the work of God; it has in it both food and sweetness; therefore it is attacked. Those which have neither are left alone.'

Thus the wisest of men kept bees to guide him through a difficulty, and used their wisdom to help out his own. It is impossible to suppose that one who could thus respect and learn from our favourites ever permitted his wingless servants to put them to a cruel death.—F. Gell.

THE QUILT.

I have recently tested the quilt, or carpet-cover, as a substitute for the ordinary crown-board, to prevent damp in wooden and straw Woodbury-frame hives, and have much pleasure in bearing testimony to its efficiency. During winter ventilation has hitherto kept my hives dry and healthy; but damp has frequently been troublesome in the spring, when cold, frosty nights succeed bright warm days. About three weeks since I found my frame hives very damp in the corners, and also at the ends of the hives, beyond the cluster of bees, where the condensed moisture had pretty well saturated the floor-board. Having shifted the bees into clean, dry hives, I substituted two or three thicknesses of Brussels carpet for the crown-boards, and after several inspections

have always since found the hives *thoroughly dry* and comfortable, in spite of very trying weather.

If all be well I purpose to use the quilt exclusively next winter. — J. E. Briscoe, *Albrighton, Wolverhampton, 13th May*, 1876.

LECTURE ON BEE-KEEPING.*

By J. G. Desborough,

Prize Essayist of the Entomological Society for the year 1852, 'On the Duration of Life in the Honey Bee.'

Bees have attracted the attention of man even from the remotest age. Every one who has attained any proficiency in classics will have perused the praises of the bees sung by Virgil, and it may almost be said that the fourth Georgic is in itself a lecture on bees.

Entomologists will tell you there are many kinds of bees, some gregarious or living in families, and some solitary; it is not, however, our intention to dilate upon the various kinds of bees or their habits, but only in this lecture to confine ourselves to the habits and management of the honey bee (*Apis mellifica*); and although of late years rapid strides have been made in the management of this insect, both in the discovery of various facts in its œconomy and in explanation of its general habits, much has still to be learned and much explained which is yet but little understood; so that even after the subject has been apparently exhausted, other apiarians may follow in a different form, and deliver a lecture without intruding upon the ground taken up by their predecessors.

A great deal has been written on the management of the honey bee; many of the works have run through several editions, and almost every writer on bees has had his pet system of management to recommend, of course always declaring that his own is the best; and thus the apiarian novice, wishing to set up an apiary, is perplexed to know which of the many systems to adopt, or which to avoid, so that when he at last has chosen some particular system, or some particular kind of hive, he finds to his mortification that the vaunted advantage he has read of, and which induced him to adopt that particular line of management was not at all suited to his locality, he becomes disappointed at the result, he regrets the expense he has incurred, and he gives up the pursuit.

The object of the present lecture is to lay before our friends a few plain facts relative to the management of the honey bee, to avoid all semblance of mystery, and more especially to avoid all jealousies in recommending any particular kind of hive made by this or that individual, and endeavour, as far as practicable, to give the most sincere and disinterested advice to all wishing to succeed in this most interesting pursuit.

Every hive, stock, or colony of bees, therefore, it should be known, consists of three kinds of bees. One queen or mother bee (a perfect female), several hundred drones or male bees, and many thousand workers or imperfect females. The entire work of the hive is performed by the workers, and the object of the colony, if left to themselves, is: first, to perpetuate their species; and, secondly, to lay up or provide a sufficient store to keep themselves through the winter, and so far into the ensuing spring, that there may be no fear of scarcity of food before the flowers afford the means of livelihood by giving a supply of honey sufficient to keep the population of the hive at that time.

Now, the bee is not a lazy insect; but, on the contrary, a very industrious one; and truly doth Dr. Watts say in his well-known verses:—

'How doth the little busy bee improve each shining hour,
And gather honey all the day from every opening flower.'

* Sent in competition as a Prize Essay to the British Bee-keepers' Association, Crystal Palace Show, 1875. Class 32.

Taking advantage of this habit in the bee, the main object of the bee-keeper, it is evident, is not only so to manage his stocks that they may gather the greatest quantity of honey whilst the honey season in this country lasts, but so to contrive his hives that the honey may be be taken away from the bees in a pure state.

We have said that one object of a hive or colony of bees is to perpetuate its species, and we must now devote a few minutes to explain the proceedings of an ordinary hive if left to themselves, or it may be otherwise said, in their wild state. We will suppose a hive has gone through all the vicissitudes of the winter, and has still left in the spring a sufficient quantity of honey for food, and that the queen is in a healthy state—under such circumstances the population of the hive will rapidly increase; and if it is borne in mind that twenty-one days elapse from the depositing of the egg to the time of the bee becoming a perfect insect, and that the queen deposits thousands of eggs in a day, it may easily be conceived how the population of the hive is multiplied. At this time a large number of the cells in the hive; say, many thousands, are occupied with breeding young bees, a large number are also wanted for storing of honey and pollen, or bee bread, but the population, under favourable circumstances, is increasing so rapidly that some provision must be made for the accommodation of the rising generation of bees; a division of the family becomes necessary, and the bees begin to make preparation for rearing queens in addition to the reigning one; certain cells are therefore constructed of a different kind to the ordinary ones, and the grubs or maggots hatched from the eggs laid therein are fed with a different kind of food, and in sixteen days these grubs are matured into queens; but a few days before these young queens come to maturity, the old queen endeavours to destroy them, and not being allowed to do so by the worker bees, a great commotion is caused in the hive, the old queen and a large number of the bees rush out, and what is termed swarming takes place, by which means the family is divided; the old queen and the bees going with her seeking a new habitation, but leaving several embryo young queens to carry on the œconomy of the old hive; after this a further division of a similar kind may take place both in the old hive and the new swarm; but we need not carry this part of the subject further, sufficient for our present purpose is to show the necessity for the division, and then to show how the skilful apiarian takes advantage of this propensity or necessity to swarm, whichever you may choose to term it, to obtain from his stocks of bees a supply of pure honey.

But few persons ever see the interior of a beehive, and therefore a few works in explanation of a slab of comb, of which there are about eight or nine in each hive, may not be out of place. This comb is used for two purposes, the first as a nursery for rearing the brood of young bees, and next as a storehouse for honey and bee-bread, the food of both young and old bees. The cells of which each square inch contains twenty-seven, are placed horizontally on each side of this comb, and a very large proportion is used for breeding purposes in the breeding season. The eggs are laid by the queen, they hatch into a maggot, and in a few days are transformed into a chrysalis, from which emerges the perfect bee. Each maggot before its transformation spins in its cell a silken cocoon which it leaves in the cell; and as each successive generation of bees leaves its cocoon in the cell one after the other, the cells become black and dirty from the impurity left therein, and ultimately become too small for the proper rearing of the bees; it must therefore be apparent that any honey stored in these cells when they are in such a state as that just now described, must partake of the impurity of the cells, and be greatly deteriorated in consequence; and one main object of the bee-keeper is to get honey which has not been stored in such cells. The centre comb in an ordinary straw-

hive or box, and the comb on each side of it will be occupied almost entirely with cells used for the purpose of rearing brood; this space so occupied by brood will be nearly of a circular form, or tending rather to an oval form; immediately around this space, about an inch or more wide, the cells will be filled with pollen or bee-bread mixed with a little honey, whilst the cells at the extreme edge of the comb will be filled with honey. The second combs from the centre of the hive will be very nearly occupied in the same manner, except that the breeding space will not be so large, and the honey-store will be consequently greater, whilst the cells will be to some extent drone-cells, which are of a larger size than worker cells, the combs will necessarily be thicker, and the outside combs where no breeding takes place, will be thicker still, and the cells will be lengthened out for storing honey, and will be finished off to the shape of the hive or box, leaving just space enough for a bee to pass between the comb and the side of the hive; these outside combs are the only ones in a straw-hive or skep; or even, indeed, if the hive be made of wood in which any great quantity of honey will be found, and in them will be found many cells filled with pollen or bee-bread; and as the hive becomes old, these outside cells are gradually taken up for breeding purposes, in consequence of the cells in the centre becoming dirty and useless. In this short description of the uses to which the combs in an ordinary hive are put, it will be seen how little space is occupied as honey-store, and scarcely any is occupied with cells in which pure honey alone is stored; and the object of a successful bee-keeper is to reverse this order of things, and keep his pure honey if he can in one part of the hive.

It may be as well here to observe that in all kinds of hives the utilization of the heat generated by the bees is a very important consideration; a certain degree of heat is necessary to manipulate the wax for the purpose of comb-building, and also for the rearing of the brood; in the construction and arrangement of the hive, this must not be lost sight of, and we shall have to allude to this subject in a subsequent part of this lecture when considering and explaining various kinds of hives.

A perfect and accurate knowledge of what is going on in the interior of the hive is absolutely necessary for the bee-keeper to decide upon the particular course he should adopt, either to increase the number of his stocks, or to obtain a supply of honey. In all kinds of hives consisting of boxes or straw skeps, although you may have windows in the sides and ends, and you may have also the means of looking in at the top, yet it is impossible to see between the combs; and you have to judge from outward appearances of the state of the interior of the hive, and however experienced you may be, it is quite possible to be deceived. The improvements which in the past few years have been made in the construction of the bar-frame hive, have enabled the apiarian to examine every separate comb; he is therefore capable of seeing at once what the hive requires; he can see the quantity of brood existing in the hive; he can see what store of honey the stock possesses; and he can also see whether there are any queen-cells in progress; he can likewise see her majesty the queen, and judge whether she is in a healthy state. If, therefore, he wishes to increase the number of his stocks, he can make what is termed an artificial swarm, by taking two or three bars containing brood-comb, and set up a new colony, leaving the old queen to govern the old stock, and replenish it with bees: if his object be to obtain honey, he can cut away a piece of the comb containing honey, or he can obtain a larger quantity by using the honey-slinger, and return the empty combs to be refilled, or he can deal with the stock in various other ways, depending upon the condition in which he may find the stock or colony under examination.

(*To be continued.*)

Foreign Intelligence.

ITALY.

The General Meeting of the members of the Central Bee Association took place in March last. At another meeting of the Management Board, held in April last, it has been determined that this year's Annual National Bee Show be held in Milan as usual. It has further been decided to hold an International Apicultural Exhibition during 1877, to carry out which a committee has been appointed composed of the following gentlemen:—Conte Carlo Borromeo, Principe Ferrante Gonzaga, Sig. Giustino Sermasi, Sig. Andrea Ricci, Conte Gian Luca della Somaglia, Nob. Francesco De Hruschka, Cav. Andrea De Rauschenfels, Conte Gaetano Barbò.

Among the prizes to be given by the Association next year, there will be a gold medal with diploma for the best apiary established during 1877, to consist of not less than 300 stocks, all on the moveable bar-frame of the Standard measure. A silver medal with diploma will also be given to any one who may in 1877 have succeeded in inducing at least fifty cottagers to use the moveable super, such cottagers to represent collectively 300 stocks as a minimum.

Echoes from the Hives.

Ringwold, Dover.—'The bee loss in this part averages quite 50 per cent.'

Newark.—'My bees have done well during the winter, and what I have lost has been through my own imprudence, mismanagement, or want of experience.'—J. I.

West Kilbride, Ayr.—'My little stock is reduced to four hives out of twelve, at the end of last season, caused by foul brood getting into my stock.'

Ayrshire.—'As yet there is no appearance of honey. Bees not fed are dying. Cold east wind and frost every night.'—May 19th, 1876.

Aberdeenshire.—'Bees here get no honey scarcely until the clover comes into bloom, which will be nearly the end of June this year if the weather does not alter soon. We have terrible cold days again, bees quite shut up. We will have no swarms this season until the middle of July I fear, if we get any then. I fancy your bees will be swarming in grand style by this time, and getting plenty of honey; but perhaps we will get up with you by the end of August.'—A. J. A.

Hart's Hill, Stoke-on-Trent.—'Bees have done the worst that I have known for the thirty years I have kept them. I have lost six out of nine. I was away from home in August, or I should not have lost so many, but North Staffordshire is no country for bees. I have kept them in Suffolk, Norfolk, and Cambridgeshire, and could always do a great deal better; there is so much smoke, and it is so cold here.'

Rock House, Alphington, Exeter, May 22, 1876.—'The weather here, since the 1st of May until yesterday the 21st, has been very bad for the bees: a northerly wind has been blowing all the time. Stocks that have lived through the winter (which amongst cottagers the number is small) have only gathered enough for their own consumption; in my own apiary the stocks are strong, but I have only just put on supers, so the prospects of the present season are rather bad.'

Harleston, Norfolk, May 18, 1876.—'This is funny (?) weather for bee-keepers, but good for the sugar-merchants, as the feeding-bottles have to be kept plentifully supplied. Hope when the weather does change for the better we may be rewarded for our trouble.'

Sheffield.—'We have had a week's splendid weather here, and the bees have revelled in the apple-blossoms, which are profuse. Prior to that we had sunshine only in the middle of the day for an hour or two, with the wind continuously N.E.; it is now N.W., but gloomy and unsettled.'—J. J. H.

Prestonkirk.—'My best stock (in a Sherrington) to which I gave a Ligurian queen on 27th September, is now massacring the remnant of the black aborigines, which must now be rather more than seven months old. This would seem to be the limit of her life under favourable circumstances.

'If the above would be of any interest among your reports or 'Echoes,' or otherwise, please make use of it.'—T. B. S.

North Wilts.—'My first swarm came out on 20th May. I had prepared my hive according to your advice, placing the three frames full of old comb alternately with empty ones, and a division board to keep the bees snug. Last evening (24th) on opening the hives to take away the tapes and tacks, I found that the bees had gnawed away the tapes, and that the comb next the division board had fallen down on the floor-board, carrying another comb with it. I intend to provide against a like casualty for the future by using wire instead of tape.'—G. C.

[NOTE.—The fault in this case does not (as we believe) lie with the tape, but from the combs not having been pressed close up to the under side of the top bar when they were transferred. Wire cannot be gnawed by the bees, but being very thin it will allow the warm comb to fall either way, as it offers scarcely any resistance. It is important in successful transferring that the combs have a long longitudinal surface, touching the top bar; the bees will then *fix* it, but if only touching *here and there* the removal of the tapes will allow it to fall. Ligatures of any kind coming in the way of the bees are nuisances to them, and they almost always cut away the comb, so that they may pass between it and the ligature. Bees have a decided aversion to travelling (crawling) on anything but *comb* in the body of the hive.—ED.]

Somerset.—'I am glad to find that there is every prospect of a Bee and Honey Show being held at Weston-super-Mare this summer. Mr. O. Poole, of Uphill, the Honorary Secretary of the West of England Apiarian Society, an enthusiastic bee-keeper, has been working most energetically, and has issued a neat little pamphlet calling attention to the pleasures and profits of bee-keeping in general, and to the aim and objects of the society named in particular. I hope it will have the effect of rousing up the good folks of Somerset and Dorset, and helping on our favourite pursuit. Mr. C. Lewis, of 15 Fore Street, Taunton, is also doing his best to arrange for an apicultural display in connexion with the show of the Taunton Horticultural Society in August next. I remember that the same gentleman had a very interesting and attractive exhibition of bees and bee appliances on a similar occasion in 1872, and hope sincerely that both Mr. Lewis and Mr. Poole will be well backed up by the bee-keepers of the county. There have been very few swarms in this district yet. The first I heard of was in the neighbourhood of Langport, on the 18th inst. My Woodbury hives have been pretty well crammed with bees for weeks past, but they have shown no indications of moving off, and as I cannot get comb enough to stock a set of frames I have delayed driving, hoping for the fine weather which we have been so long looking for in vain. It has been wretchedly cold for a month past, and the crops are very backward in consequence. In place of warm sunshine and genial growing showers we have had keen easterly and north-east winds. But "*nil desperandum*" must be our motto still.'

Helmsley, Yorkshire.—'It has been very bad weather in this part of Yorkshire this spring. We have only had one fine week, and it was the first week in April. There have been a good many hives lost this winter (straw skeps)—in this place as far as six and eight in one hand; but they are the old-fashioned style of keepers—no-help no-assistance sort of people.'

Bakewell, Derby.—'The coming of your *Journal* reminds me that I must pay; so please receive my cheque. We have had most unkind weather here for some time, and to-day a cold north-east wind is blowing. Still all my hives are living, and in good form. They don't feed much now, for bloom is coming out.'

Arbroath.—'This has been, and still is, a very backward spring for bees in this quarter. Alternate frost, snow, and rain, with only occasionally a fine day, on which bees could fly and collect a little pollen. Breeding in even the strongest stocks has been very much retarded, and swarming will be late unless we get exceptionally fine weather in May. As usual, a great many weak stocks have succumbed, which is another convincing proof of the golden rule, "*Keep your stocks strong*;" and I may add that the greatest secret of successful bee-keeping is, "*Keep none but strong stocks.*"'—M.

Edgware.—'The compliments of the bee season to you, and successful may you be both with bees and *Journal*. I was pleased to read of a "Remedy for Bee Stings," and hope that it is new and effectual; for I have tried upwards of twenty so-called remedies, and find for some individuals they are of great avail, but unfortunately poor I up to the present suffer quite or nearly as bad as ever, especially if stung on the face. I am writing this with my left orbit closed for the second time in a month. The pain I care little for, but the swelling is inconvenient, and lasts a considerable time. The inoculation scheme I have tried to little purpose. I suppose at the end of five or ten years I may become poison-proof if I live so long. I am pleased to say my hives are all doing well with the exception of one, which must have a fertile worker. I have hunted several times for a queen, without success. It has now an abundance of brood, but all drone. You give good sound advice to amateur bee-keepers this month about transferring: I wish I had had such sage advice so emphatically put two years ago.'—W. S.

East Grange, near Culross, N.B., 28th April.—'I hope you are managing to make the business pay. I suppose you will be almost sick of letters letting you know how bees have survived the winter. However, I just want to give you an idea of my successes and failures. First, as to my box hives. The one I had made after your pattern in the earlier numbers of the *Journal*, which gave me no honey last year, but had plenty of bees, has almost succumbed this spring. I let them have all the honey they could gather last year, and expected they would stand the winter, as they had sealed honey in the combs. I looked at them occasionally during the mild weather, and early in the season, and thought them still keeping right: but about the middle of March, when again looking them up, I was surprised to find them, as I thought, all dead. Quite down-hearted, I poured some syrup down over them, and left them. I went back in about an hour to see what was to be done, and was surprised to find some flying about, and the mouth of the hive choked full of dead bees. I got my cleaner and brought out about a shovelful, I daresay, all dead; and next morning I got out a further quantity. I took out all the combs except three, and then fed them with syrup through a piece of perforated tin, giving them only one hole. With this they managed to fill up the tops of the combs, and seal them, and put some brood in one of the combs. I discontinued feeding, only shaving off the seals as often as I could, and now I cannot say how they are getting on, as the weather has set in so bad—wind and rain—that I cannot get near them. Your 3*s.* box hives have done splendidly. I have now two of them. One I put in some driven bees last autumn, along with some old combs, tying it to the frames, very stupidly. They cut the string, and the combs fell, and they then built anew,

and sealed a good few. I expected it was to be a failure through the winter, but I rather think it will be one of the best hives I have this summer, if the weather is favourable. All the other hives have done well, and altogether I may wish you and your *Journal* every success, for they have helped me greatly, and other people as well. Some of the old school of bee-keepers have lost some of their hives. I feed through one hole in a piece of tin, which I find does well, and the bees take all they can get.'—W. B. Brunton.

Bannockburn.—'If this weather does not change it will raise the sugar in price, as it is feed—feed on at bees, and no other prospect. I was beginning to think we were to have no wasps this season, but I see they have begun to fly about. Generally speaking, when we have plenty of wasps the bees do well, and there is plenty of honey; and as I have not a fruit garden I don't kill them, as my bees are quite able to defend their fortress. I have seen a bee-keeper, and he has a wasps' nest in a bush at the back of his hives, and would allow no person to harm them; and his reason for it was, that some seasons the wasps were of use to the bees by taking poison out of some flowers that the bees work on and trees that sometimes yield honey. So much for wasps. John Armstrong.'

Ayrshire.—'Here (Ayrshire) we have had a bad time hitherto. During winter very many stocks were lost, and up to now (3rd May) there have not been more than four days when bees could get out; frost every night and bitterly cold. It is very disheartening, as far as bees are concerned.'

Llyswen Rectory.—'As to my apiary, I can say, Well done, quilt!'

Queries and Replies.

Query No. 153.—I would feel obliged by your answering the enclosed question in the June No. of the *British Bee Journal*.

What is the cause and remedy of the following? I have only two hives near one another. One a stock of black bees in a Stewarton hive, which is very strong, and bringing in pollen well, and has not swarmed but made honey only for four years. The other is a stock of Ligurian bees in a frame hive with ten frames. it threw off a swarm last year, but they returned to the parent hive in about four months. This stock, although working strongly, has for about two weeks back been busily killing its members, and throwing them off the floor-board in large numbers. Those killed are all Ligurians. On substituting a clean floor-board no dead bees were on the old one, all having been pitched overboard. There are no Ligurian bees in its neighbourhood. I forgot to say this hive is still bringing in pollen very fast, and works strongly.—J. W. Edmundson, *Carrickmines, Co., Dublin, May 22*, 1876.

Reply to No. 153.—This we strongly suspect is one of the extraordinary cases which occasionally occur of queens breeding what, for the want of a better name, we call 'abnormal bees,' little creatures, with black, shiny tails, and with a curious-looking head and thorax. We attribute the slaughter to the fact of their being useless, being neither workers nor drones. The cause of the abnormality we cannot account for; in a similar case we exchanged the queen, and the slaughter ceased after the lapse of three weeks; but in another instance, well authenticated, the erratic breeding, and the slaughter went on for a few weeks, but suddenly stopped without interference. It is possible that the queen, in her excitement about the preparations for swarming that may be going on in a hive, receives an injury that prevents the perfect deposition or development of her eggs—an injury from which she may, or may not, recover. We can offer no other suggestion, but a Yankee cousin quizzed a similar reply on a former occasion, and declared his conviction that the slaughter was to get rid of useless mouths in a bad season.—Ed.]

NOTICES TO CORRESPONDENTS & INQUIRERS.

A. F. W., *Newington.*—There is no regularly established honey market. You had better receive the consignment of foreign honey, and find a purchaser amongst wholesale dealers and contractors. The general price of foreign honey is about 7*d.* per pound.

Tenbury Wells.—The comb is quite sweet and wholesome. The bees in it are perfectly formed, and there is no sign of foul brood. We see no reason for the bees' desertion unless they were too few in number to be comfortable, and so left on the first fine day.

Miss Kate.—We sincerely apologize, but had the rule regarding stamped and *directed* envelope been complied with, we could not have made the mistake. Handwriting, though generally indicative of sex, gives *us* no clue to condition.

Walter Williams wants to know how to divide 14½ in. (the width of a Woodbury hive) into ten equal parts, since he cannot obtain a rule marked with inches divided into twentieths: and here is a simple method which is accurate and unfailing. Take a sheet of machine-ruled foolscap, and count off twenty-one lines, which will enclose twenty spaces occupying from 8 to 10 in. according to their distance apart. Then, lay a rule diagonally across them, and make dots on the first and the twenty-first lines exactly 14½ in. apart; lay a straight edge on these dots and cut the paper with a sharp penknife, when it will be found that the ends of the alternate lines on the edges just cut, will be exactly the distances apart required, viz. 1$\frac{9}{20}$ in., and the inter lines will show the exact centres of each of the spaces so set off.

A. G. R., *Cambridge.*—The information as regards hiving in bar-frame hives will be found in April and May Nos., 1875. The 2-in. super is only a section of a super—2 in. wide, nearly, just sufficient to build one comb in; the guide line is in the centre of its top bar. Any number of such sections may be placed together to form a super, and those filled may be withdrawn at any time, without interfering with other combs. Bees get both honey and pollen from *Laurustinus*. Toughened glass will doubtless be used for supers when it becomes cheap, but, except for exhibition or observational purposes, we prefer the sectional to all other supers. There ought to be no difficulty in obtaining current Nos. of *Journal* if you inform your bookseller that they may be had at Kent & Co.'s, Paternoster Row, London. Assuredly we *do* mean that the back of the hive should be raised higher than the front, if the swarm is expected to build straight combs. As a rule bees begin to build at the highest point available, and if the back be raised, and the hive level in other respects, the bees will begin building at the back end of the frames, and will continue to work parallel to the sides, along the guides. When the combs are *built*, it matters little whether the hive be raised or not, except that a slight inclination forward assists the bees in carrying *débris* along the floor-board to the entrance.

Covers for Binding the British Bee Journal, *may be had, price* 1*s., at the Office, Hanwell, W.*

OUR WANT AND SALE COLUMN.

No.
228 Two Carr-Stewarton Body Boxes, been used, straw. 7*s.* 6*d.* each.
229 Two ditto, supers, new. 7*s.* each.
230 One Huber Leaf Hive, good as new, 21*s.*
231 One pair Neighbour's Sectional Supers, new, 5*s.*
236 Home-made Hive, Quinby frames, two division boards, collateral principle, super cover and floor-board, 15*s.* 6*d.*
237 Walton's Extractor, in frame, &c. takes frames 13 by 18. Photo forwarded, 2*l.* 15*s.*
239 A Stock of English Bees in Woodbury Hive, combs all straight, just the thing for Ligurianising, 2*l.* 2*s.*
242 Six Float Feeders, 9*d.* each, and 10 Pint Feeding Bottles, 3*d.* each.
244 Wanted.—Strong, healthy skeps of Black Bees. Weight no object, if full of bees and plenty of comb.
246 Honey.—About 40 lbs. of purest drained nectar, from supers from the apple orchards of Herefordshire, in white jars of about 2 lbs. each, at 2*s.* per lb.
250 Pure heather and clover Honey (cold drained) 2*s.* per lb. in small tins, package free.
261 Bee Boxes, of japanned tin, ventilated (been used), for carrying fumigated or driven bees from condemned stocks. London. 2*s.* each.
271 150 lbs. of pure run Honey, in tins containing 25 lbs. each. 3*s.* each charged for the tins, and the same allowed when returned.
273 Bound Vol. II. *British Bee Journal*, almost new, 8*s.* 6*d.*
275 Starling's 5*l.* Honey Extractor, almost new, 4*l.*
278 A Cottage Woodbury Hive, 15*s.*
280 One 10-bar Hive, double-walled, wide-shouldered, bottomless frames; reversible floor-board, four legs, handsome super cover and roof. Very cheap, 1*l.* 10*s.*
281 24 Vols. of 'Journal of Horticulture,' minus 9½ numbers and 4 Indices, containing the valuable Bee experiences of the late Mr. Woodbury. Price 1*l.* 10*s.*
282 For Sale.—A number of Straw, Super, and Stock Hives, not new but in healthy condition, also Bee-books, &c. Might exchange part for book offers. Salisbury.
284 Two Cheshire twin-frame Nucleus hives, double cased and painted, not been used. Lee's make, 12*s.* 6*d.* each.
286 Three Stocks Hybrids in Woodbury hives. Near Leamington. 1*l.* 15*s.* each.
287 Excellent copy of Nutt's Collateral Hive, made by a first-class joiner. Carlisle. 1*l.*
292 'Management of Bees,' by Samuel Bagster, numerous illustrations; also, 'Practical Bee-keeping.' The two books, post-free, only 4*s.* 6*d.*
293 'Practical Directions for Management of Bees to Best Advantage,' by John Keys; also, 'Bees, their Habits and Treatment.' The two, post free, 5*s.* 6*d.*
294 Nos. 1, 2, 3, 4, 8, 10, 17, of *British Bee Journal*. 1*s.* each.
295 'The Management of Bees,' by Samuel Bagster, 2nd edition. 240 pages. 40 engravings. 5*s.*
296 'The Cottager's Manual,' by Huish. 104 pages. 2*s.* 6*d.*
297 'The American Bee-keeper's Manual,' by J. B. Miner. 350 pages and 35 engravings. 5*s.* 6*d.*
298 Thorley's 'Enquiry into the Nature, Order, and Government of Bees.' 2nd edition, 1765. 158 pp. 4*s.* 6*d.*
300 'A Complete Guide to the Mystery and Management of Bees,' by Rev. William White. 1771. 94 pages. 4*s.* 6*d.*
301 Adair's 'Annals of Bee Culture,' 1870. 62 pp. 3*s.* 6*d.*
302 Adair's 'Progressive Bee Culture,' 1872. 24 pp. 2*s.*
304 A new Carr-Stewarton Hive, with 3 boxes, crown board, and floor board. Manchester. 1*l.* 15*s.*
305 Phacelia seed, home grown. Leicestershire. Per oz. 1*s.*
313 For Sale.—3 Stocks of Bees in Bar Frame Hives. Frames without bottom rails. Sussex. 1*l.* 10*s.* each.
314 Sherrington Hive, new last year, filled with comb. Without cover. 18*s.*
315 Sherrington Honey Extractor. New, 1*l.* 5*s.*
316 Neighbour's Cottage Frame Hive. New, 5*s.*
317 Aston's Drone Trap. New, 3*s.*
318 *British Bee Journal* Nos. 1, 2, 3, 4, 8, 9, 10, 12, at 1*s.* each.
319 Aston's Drone Trap. Never used. 2*s.* 3*d.* Ireland.
320 Neighbour's Bee Book. 2*s.* 9*d.*
321 Bee-keeping, by the Times' Bee-master. Ireland. 2*s.* 9*d.*
322 Eight Zinc Bee-feeders, with mahogany floats, top glass, complete. 1*s.* each. Ireland.

WANT AND SALE COLUMN—CONTINUED.

No.
323 Woodbury Bar Hive, dovetailed, one inch thick, 10 frames, 2 windows, with hinged covers and floor-board complete. (Used under shed.) 10*s.* Ireland.
326 'The Bee-keeper's Magazine.' Vol. I., Nos 1, 4, 5. Vol. II., Nos. 3, 9, 10. Vol. III., Nos. 1, 2, 7. 1*s.* each, or 9 Numbers for 6*s.*
327 'The National Bee Journal.' Vol. IV., Nos. 8, 11, 12. Vol. V., No. I. 1*s.* each, or 4 Numbers for 3*s.*
328 'Novice's Gleanings.' Vol. I., Nos. 1, 2, 3. Three Numbers for 2*s.*
330 Swiss Bar-frame Hive. Painted, 8*s.*
331 Six Rye Straw Hives, workmanship guaranteed, cane-worked, locked stitch, turned wood feeding hole, rim top and bottom. 8½ × 16. Price 18*s.* Berks.
332 Wanted.—'Langstroth's Book on Bees.' Exchange given. Berks.
333 Wanted.—Some young Lime or Linden Trees. Send particulars to A. J. Anderson, Tullochleys Clatt, N.B.
334 Dry Puff-ball, post free, per packet 1*s.*, of F. S. Clutten, Fressingfield, Suffolk.
335 'Journal of Horticulture,' in good preservation, April 2nd, 1874, to September 23rd, 1875, inclusive, 10*s.*
336. Wanted.—Nos. 5 and 6 of *British Bee Journal*, 1*s.* each offered.
338. For Sale.—A large number of frames of pure sealed honey-comb, invaluable for giving to new swarms, price 1*s.* 6*d.* per lb. Yorkshire.
339. Skeps filled with comb, dark, but healthy, 5*s.* each.
340 Starling's 4*l.* Honey Extractor, quite new, 50*s.*
341 Neighbour's 35*s.* Hive, as shown in their advertisement, perfect, with thermometer, windows, &c., 14*s.* or pure Ligurian queen.
342 Wanted at once, a pure Ligurian queen. Neighbour's 35*s.* Hive, complete, offered in exchange.
343 One Carr-Stewarton Body Box-stand, 3 octagonal supers, and wooden cover, 25*s.*
344 One Neighbour's Improved Cottage Hive, 3 glass-stands and zinc cover, used one season, 30*s.*
345 One Woodbury Hive, complete, used one season, well painted, 18*s.*
346 One Carr-Stewarton Body Box, 8*s.* 6*d.* not been used.
347 One Proctor's Patent Safety Hive, filled with healthy comb, all complete with cover and roof, 25*s.*
348 Plain Wax sheet, per lb. 4*s.* post free.
349 A Neighbour's Cottage Hive, second hand, complete, with cover, thermometer, windows, &c., filled with clean comb; also 3 small glasses for same. Ireland. 15*s.*
350 Rev. H. Bligh's Bee Quieter, with fumigator, new, 2*s.* 6*d.*
351 Four Abbott's Cottagers' Hives, filled with combs, quite healthy, 25*s.*
352 Straw Woodbury Hive, with comb and improved top, 20*s.*
353 Best Pine Super for ditto, filled with white new comb, 2 windows and shutters, 12*s.* 6*d.*
354 One Taylor's Glass Super, also full of comb, 3*s.* 6*d.*
355 Three Bell Glasses, full of comb, 6*s.*
356 Five Vulcanite Plates for feeding, 2*s.* 6*d.*
357 Four Adapting Boards, 3*s.*
358 Two dozen Laths and Tape, 1*s.*
359 One Spatula, postage 3*d.*, 2*s.*
360 Four Quilts, 8*s.*
361 Six Single Stands, 10*s.*
362 Bee-shed for 4 Hives, 20*s.*
363 1 lb. Bees Wax, 20*s.*
364 *British Bee Journal.* Sept. '74 to Mar. '76, 19 Numbers and Pagden's little book, 10*s.*
365 *British Bee Journal*, from its commencement, in 3 Vols. bound, must be sold together, 30*s.*
366 Several Swarms of English Bees (Douglas, Isle of Man), will be sent off in rotation as ordered, each, 15*s.*
367 *British Bee Journal.* Vol. I. 20*s.*
368 Apiary, complete Bee-house, with 40 wooden frame Hives, about 300 lbs. sealed Honey in frames, and about 400 frames with good comb, a closet to hang 600 frames; 30 straw and wooden Hives, with other Bee-furniture, as Hives for Queen raising, &c. Price 40*l.* complete. J. G. Kirsten, Bridlington, Yorks.

*** *Letters respecting the above to be addressed to the Office of the British Bee Journal, Hanwell, W.*

The Caledonian Apiarian & Entomological Society.

GRAND HONEY FAIR AND EXHIBITION OF HONEY, BEES, &c.

SEPTEMBER, 1876.

KIBBLE CRYSTAL PALACE.

Patrons.—His Grace the Duke of Argyll; the Right Hon. Lord Elibank; Colouel D. C. R. C. Buchanan, of Drumpellier; Professor W. B. Hodgson, LL.D., F.C.P., Edinburgh; Professor John Young, M.D., F.R.S.E.; the Honourable the Lord Provost of Glasgow; Colonel Holms, M.P.; Bailie Scott, Barrochan and Greenock; Peter Denny, Esq., Helenslee, Dumbarton.

President.—Colonel A. C. Campbell, of Blythswood.

Vice-Presidents.—Robert J. Bennett, Esq. 50 Gordon Street; John Wilkie, Esq. Alma Villa, Gourock; James Sword, Esq. Falkirk; Angus Cameron, Esq., Kingussie.

Instituted 28th March, 1874.

PRIZE LIST.

		First.	Second.	Third.
1.	For the largest and best display of Honey and Honey Comb (either Dale or Moorland, or both)	60/	40/	20/
2.	For the best exhibition of Sectional Supers from one Apiary, not above 5 lbs. each	20/	12/6	7/6

CLOVER or FLOWER HONEY.

(Exclusive of Heather.)

3.	For the two best Supers above 20 lbs. each	30/	20/	15/
4.	For the best single Super above 20 lbs.	20/	15/	10/
5.	For the best Super above 12 lbs. and under 20	15/	10/	7/6
6.	For the finest Super, straw, wood, or glass, any size	15/	10/	7/6
7.	For the best sample of Run or Extracted Honey, not less than 7 lbs.	15/	10/	7/6

HEATHER HONEY.

8.	For the two best Supers, above 20 lbs. each	30/	20/ ..	15/
9.	For the best single Super, above 20 lbs.	20/	15/	10/
10.	For the best Super, above 12 lbs. and under 20	15/	10/	7/6
11.	For the finest Super, straw, wood, or glass, any size	15/	10/	7/6
12.	For the best sample of Run or Extracted Honey, not less than 7 lbs.	15/	10/	7/6

COMESTIBLES.

13. For the best Liqueur or Wine made from Honey, with recipe attached (not less than two quarts) ... ... 20/ & Silver Medal Bronze Medal Certificate.
14. For the best Mead or Beer made from Honey, with recipe attached (not less than two quarts) ... ... 10/ & Silver Medal. Bronze Medal. Certificate.
15. For the best Sweetmeats made with Honey (not less than 2 lbs. with recipe attached) 10/ & Silver Medal. Bronze Medal. Certificate.
16. For the best Cakes made with Honey (with recipe attached), not less than 2 lbs. 10/ & Silver Medal. Bronze Medal. Certificate.

(The samples to which 1st Prize is awarded, in Classes 13, 14, 15, and 16, shall become the property of the Society, to be used at the Judges' Dinner.)

HIVES AND WAX.

17. For the best Hive for observation purposes, all Combs to be visible on both sides 20/ & Silver Medal. Bronze Medal. Certificate.
18. For the best and most perfect Bar-frame Hive with Super, or set of Sectional Supers, and Cover complete ... ... 20/ & Silver Medal. Bronze Medal. Certificate.
19. For the most perfect Hive on the storifying principle ... ... 20/ & Silver Medal. Bronze Medal. Ceatificate.
20. For the best Straw Hive of any description ... ... Bronze Medal. Certificate.
21. For the best sample of Wax Guide Sheets, not less than six sheets ... ... 10/ ... 7/6 ... 5/
22. For the two best samples of Wax, in cakes of not less than 1 lb. each ... ... 7/6 ... 5/ ... 3/

MISCELLANEOUS.

23. For the best and largest collection of Hives, Bee Furniture, Bee Gear, and Apiculturists' necessaries, no two articles to be alike ... ... 20/ & Silver Medal. 10/ & Bronze Medal.
24. For the best and largest display of British Bee Flora, in a dried state or otherwise, each plant or specimen must have a card attached stating time of flowering, duration of bloom, and any other particulars calculated to be of interest to Bee-keepers ... ... 20/ & Silver Medal. 20/ 10/ & Bronze Medal
25. For the best Bee Feeder, the invention or adaptation of exhibitor ... ... Bronze Medal.
26. For the cheapest, neatest, and best Supers for producing Honey Comb in a saleable form Bronze Medal.
27. For the best Honey Extractor, portability and cost to be taken into consideration 20/ and Silver Medal.
28. For any new invention calculated in the opinion of the Judges to advance the Culture of Bees Bronze Medal.
29. For the best and most interesting collection of natural objects connected with Apiculture, illustrating the natural history and economy of the Honey Bee ... Silver Medal.
30. For the best Micro-Photographic Slides, suitable for use in Magic Lantern, illustrating Bees Silver Medal.
31. For the best Chemical or other test for instantaneously detecting spurious from genuine honey Gold Medal. Silver Medal. Bronze Medal.

BEES.

32.	For the best species or variety of Honey Bees, other than the Ligurian or Black Bee, suitable for cultivation in Scotland, to be shown in Observatory Hive ...	40/	30/	20/

LADIES' PRIZE.

33. For the best executed group of wax flowers, fruits, or other ornamental design. Gold Ring.

HONEY FAIR.

In addition to the PRIZE EXHIBITION, a space will be set apart for the Exhibition and Sale of Honey and Honey Comb in Glasses or Supers. In this Department purchases may be made and goods delivered at all times during the Show. The Society will provide Salesmen to whom all money MUST BE PAID, which will at the close of the Show be accounted for less ONE PENNY per Shilling for Commission. Every Exhibit in the Honey Fair must have *distinctly marked* on it the weight and price, which must include the package which contains it. The Society will not break bulk. Every Exhibitor in this Department will be required to enter his or her name and address, and must state the extent of COUNTER SPACE which they will require. ENTRY MONEY, 1s. per Square Yard of Counter Space.

RULES FOR COMPETITORS AND EXHIBITORS.

All Honey and Honeycomb must be the *bonâ fide* property of the Exhibitors, produced from their own Apiaries, and have been gathered by the Bees in the natural way within the United Kingdom, and all to be the produce of 1876.

Entries must be made with the Secretary not later than the 31*st day of August.*

Entry Money (which must be paid at time of entry): Members 1s. for each exhibit, Non Members 3s. 6*d.* for first, and 1s. for each Exhibit thereafter. Forms of Entry will be forwarded by the Secretary on receipt of a stamped addressed envelope. All Articles intended for Exhibition or Competition must have a Card attached, *distinctly marked*, with class and number for which they are intended. If for exhibition only, must be so declared, and left with the Stewards the day before, from 2 till 7 p.m., or from 6 to 10 a.m. on morning of Show.

No exhibit shall be removed from the Prize Exhibition during continuance of Show, but must all be removed on the following morning, between the hours of 7 and 11 a.m. *These Rules will be strictly enforced.*

No Prizes will be awarded where Three Lots have not been entered for Competition, unless specially recommended by the Judges who are empowered to test chemically, or otherwise, all samples of Honey or Honey Comb, which, if found spurious, shall be confiscated, and the Exhibitor ejected the Society.

Judges are empowered to withhold Prizes if Exhibits are not of a sufficiently meritorious character, or to award Prizes for any appliances which may be Exhibited, and are calculated to be of real service in the Apiary.

Prize Money will be paid on WEDNESDAY, 18th OCTOBER, when, if not then claimed, personally, or by letter, will be forfeited to the Society.

50 *Gordon Street, Glasgow.* JOHN HENDERSON, *Secretary and Treasurer.*

THE EAST OF SCOTLAND BEE-KEEPERS' SOCIETY.

INSTITUTED JANUARY, 1876.

Patrons.—The Right Reverend the Bishop of BRECHIN; the Right Honourable Lord KINNAIRD; Admiral MAITLAND DOUGALL of Scotscraig; the Right Honourable the Earl of AIRLIE; Sir JOHN OGILVY, Bart., of Baldovan House; DAVID SMALL, Esq., of Gray House.

Patroness.—Miss STIRLING GRAHAM, of Duntrune.

President.—Mr. HENRY LORIMER, Coldside, Dundee.

Vice-Presidents.—Mr. JOHN STEWART, Letham Mill, Arbroath; WM. HAY, Esq., Town Clerk of Dundee.

Secretary and Treasurer.—Mr. WM. RAITT, Liff, by Dundee.

The Society will hold its First Exhibition of BEES, HONEY, HIVES, &c., in conjunction with the Grand International Horticultural Exhibition, to be held in DUNDEE, September 7th, 8th, and 9th, 1876.

INTENDING Competitors must give notice to the Secretary not later than the 31st day of August, specifying the Class and Number in which they intend to compete, and enclosing One Shilling of Entry Money for each Exhibit. Members of the Society may compete Free. All Honey, unless entered for Exhibition only, must be the *bonâ fide* produce of the Exhibitor's own Apiary, gathered in the natural way during 1876. No Competitor will be allowed to enter more than one lot in each number.

First Prizes only will be awarded should the number of Entries not exceed the number of Prizes offered in any number, unless the Judges specially recommend otherwise.

Honey intended for Sale must have marked on it the nett weight and price, which must include the package which contains it, and arrangements will be made for the sale of such in bulk, but only through the Society's officials.

All Articles intended for the Show must be staged before 10 o'clock on the evening of the 6th, and cannot be removed before 6 A.M. of Monday, the 11th September. In all other respects Exhibitors will be subject to the Rules of the Horticultural Society. Intending Members should communicate with the Secretary—Annual Subscription, TWO SHILLINGS AND SIXPENCE payable in May.

SCHEDULE OF PRIZES, OPEN TO ALL.

CLASS A.—HONEY AND WAX.

	1st.	2nd.	3rd.
1. Largest and Best Harvest of Super Honey, the produce of one hive ...	60/-	40/-	20/-
2. Heaviest and Best Single Super, the produce of one hive	30/-	20/-	10/-
3. Best Super in Wood, or Wood and Glass	20/-	10/-	5/-
4. Best Sectional Super over 20 lbs.—Combs separable, and not exceeding 4 lbs. each	20/-	10/-	5/-
5. Best Super in Glass	20/-	10/-	5/-
6. Best Super in Straw	20/-	10/-	5/-
7. Best Two Combs in Bar Frames ...	15/-	10/-	
8. Heaviest and Best Skep—must be free from brood, and obtained without destroying the Bees ...	30/-	20/-	10/-
9. Six lbs. of Run Honey in Show Glass	15/-	10/-	5/-
10. Two lbs. Wax	7/6	5/-	
11. Six Sheets Impressed Wax Comb Foundations	10/-	5/-	

CLASS B.—HIVES AND BEES.

	1st.	2nd.
1. Bar Frame Hive, complete, with Floor-board, Super, and Roof, price not over 20s. ...	20/-	10/-
2. Cheapest Bar Frame Hive, suitable for Cottager, with Floor-board and Roof ...	15/-	10/-
3. Best Hive on the Storifying principle, price not to exceed 20s.	20/-	10/-
4. Best Straw Skep and Super	10/-	5/-

Exhibitors of the above Hives must undertake to supply any number of similar Hives at the prices affixed to their Exhibits.

5. Best and Neatest Observatory or Unicomb Hive, to be exhibited stocked with Bees	20/-	15/-
6. The most beautiful Ligurian Bees, to be exhibited with their Queen in Glass Hive	15/-	10/-

The Bees in No. 5 may be entered in No. 6.

By Order of the Committee,

WILLIAM RAITT, *Secretary and Treasurer.*

LIFF, BY DUNDEE, 1*st May*, 1876.

THE

British Bee Journal,

AND BEE-KEEPER'S ADVISER.

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Editorial, Notices, &c.

JULY.

The inclement weather of May appears to have told far more heavily against bee-keeping than was at first imagined, and many and grievous are the complaints in consequence. Stocks, which at the commencement of that unkind month were almost in swarming condition, were found at the end of it almost without populations, and with but little brood, the sunshine having invited the bees to the fields and orchards, and the cold winds having prevented their return. Not only have bees suffered from the coldness of the weather, but we read in the *Journal of Horticulture* that it has caused the postponement of, or interfered with the success of, sundry flower shows, and has hindered the usual garden bedding operations. We quote, June 15th :—

'The Crystal Palace Rose Show this year is a fortnight too early, for the cold which has prevailed throughout the spring has retarded the developing of the flowers. Even in Devonshire roses will not be in perfection, and all other flowers are similarly backward. The most striking evidences of this are the hawthorns, the "May" flowers of which are only now just fully developed.'

Again :—

'The exceedingly inclement May retarded considerably the important work of BEDDING-OUT, and the weather during the first ten days of June has been anything but genial and of a summer-like character. Up to the present time many of the beds in the London parks remain unfurnished, and the plants which have been planted are in a standstill state. On some days the northerly winds have savoured of March rather than June, and vegetation is generally in a backward state.'

And again :—

'As will be seen by advertisements, it has been found necessary to POSTPONE the Maidstone Rose Show to the 28th inst., and the Frome Rose Show to July 6th, on account of the lateness of the growth of the roses by the long term of cold and inclement weather.'

There is a gleam of comfort in this, as it augurs a backward season generally, and therefore bee-keepers may still hope for a good harvest, even though May swarms are sparse and June honey the exception. It is gratifying to know that in many apiaries, where the teaching of the *British Bee Journal* has been followed, and the bees have been fed to keep up the breeding, large supers are being filled, and that the prospects are most cheering; but in the majority of instances we fear it will be found that not until the limes and white clover appear will the bees have recovered from the evil effects of the May east winds and general cold weather. Our northern friends appear to be in worse plight than ourselves, for, from reports which have reached us, there had been, up to the middle of June, but few days on which bees could fly abroad, and scarcely one on which they could obtain honey. Nevertheless, as will appear from the letter of our valued friend and correspondent, 'A Lanarkshire Bee-keeper,' there is a wholesome sound in the air of *Nil desperandum;* the bees and their pasturage are both late, but 'a little patience and attention to the wants of the bee will work wonders, and by September our tables may yet be loaded with beautiful supers of honey.'

There were a few days of June weather about the 20th which must have gladdened the hearts of those whose bees were in full force, so bright and genial, and balmy, were they, and so soft and melting were the nights intervening, and although they occurred in the interval between the fruit blossoms and the limes and clover, there were oases in the desert in which the honey must positively have *flowed*, and there were few places in England where stocks that were strong did not gather largely.

Swarming being so very late, there will not be many maiden supers, *i.e.*, supers obtained from swarms of the current year, except where they have been carefully supplied with food artificially to enable them to fill their hives rapidly with comb and brood. The majority of swarms indeed, instead of revelling in the blossoms of the orchards, will have to establish their homes with the products of the fields, and being late, great results must not be expected from them. Bee-keepers should give them all possible aid to enable them to stand as stocks for next season, so as in some measure to repair the losses occasioned by the past trying bee year.

With the experience of past years as a guide, it ought hardly be necessary to remind bee-

keepers, that should unfavourable weather ensue during the latter part of this month it will be most unwise policy to allow the breeding of bees intended for stock to slacken through scarcity of food supply. Last year breeding in many instances ceased in July, and as a consequence, the bees that went into winter quarters were *old ones*, and we have little hesitation in saying that more losses were due to that fact than to any other circumstances of weather or supply. One bee-keeper whose apiary we have visited lost during the past winter no less than seventy-five stocks from this cause; 'They *would* die,' says he, 'do what I would; so no more old bees for me.'

MYSTERIES OF THE BEE-HIVE.

(*Continued from page* 23.)

Our stock of bees has now, we will suppose, arrived at the meridian of its prosperity, a culmination usually expected to occur in the merry month of May, and in contra-position to the aphorism that 'when things are at their worst they must mend,' *it* having arrived at its best will decline, or a radical change must be effected in its constitution. Imagine a walled city, with a vast and increasing population, filling the houses and streets, its warehouses filled to overflowing with wealth, its shops with merchandise, and its factories choked with their own productions, so that there is not room for labour or storage, nor convenience for the every-day business of life, and it will become apparent that unless a fundamental change be effected, the city will fall, like Rome, through its own greatness. It will be evident that in such a state, the remodelling of the streets or the enlargement of the buildings could not be carried out by the inhabitants themselves, who are already too crowded to be able to move about with comfort, and therefore, unless some greater power gives aid, and, as it were, miraculously increases the accommodation, there must perforce be an exodus of a portion of the population, or a general collapse of the whole will ensue. In human affairs miraculous intervention is not hoped for or relied on, and therefore as a matter of course the going forth of the increasing population, and the founding of new colonies are every-day occurrences, gradual in their progress, and scarcely exciting notice. But in an apistical city the emigration cannot be gradual; for bees (*apes*), unlike humans, cannot possibly exist in small number, or alone.*

The state of affairs we have pictured does not come suddenly upon the bee community, but is of long and gradual growth. At first the increase of numbers and wealth is very slow; but when it *has* commenced, its progress is amazing. Children who try to make big snow-balls know that on some occasions they cannot cause them to increase in size, roll them how they may, and until the temperature makes the snow bind, their efforts are fruitless; and it is precisely similar with the growth of a colony of bees in the spring. However anxious they or their owner may be that they shall increase, they must wait for a congenial temperature, and in the meantime their labour is wasted, for, like snow-flakes in the above simile, they fall away as rapidly as they are gathered, and often, like the snow-*ball*, the colony becomes disintegrated while advancing (?), and is altogether lost.

This condition of things has been aptly illustrated during the past month of May. Stocks that at the end of April were in fairly flourishing condition, were tempted during the ensuing month, while the fruit-trees were in blossom, to take the most active measures to promote the increase of their populations; yet although they bred largely and consumed immense quantities of honey in doing so, their numbers did not increase, the deaths through the lowness of the temperature being in most cases equal to, and in many in excess of, the births.

We are, however, to suppose that the colony under notice is approaching the zenith of prosperity, and that it will shortly be necessary for a portion of its population to leave it and found a new colony; in fact, we are to suppose —to adopt an expression commonly in use— 'that the bees have determined to swarm.'

Now, it is tolerably well known that when a first swarm issues, it is (normally) accompanied by its parent queen, more properly, the Mother Bee; and in view of her departure, the bees take extraordinary precautions to ensure a successor. In this respect bees are not by any means good economists; they require, as a rule, two young princesses, one to head a second swarm, which usually issues about nine days after the first, and the other to remain at home in the hive to become the monarch there, yet in their anxiety to make sure of a royal successor, they generally raise from six to eight young queens, and sometimes more than

* There is a remarkable difference between bees and wasps in this respect. A queen-wasp will go forth in the spring and make her own nest, and having deposited one or more eggs, will feed and nourish the hatched larvæ, and build new cells in which to deposit other eggs; labouring incessantly until her first nurslings become perfect wasps and take up the work. A queen-bee, on the contrary, does nothing towards the formation of a cell or the nursing of brood, being when alone useless, and certain to die in a few hours. Worker-bees also are equally useless as individuals; alone, a bee is a helpless, aimless creature, incapable of work and having no desire to perform it.

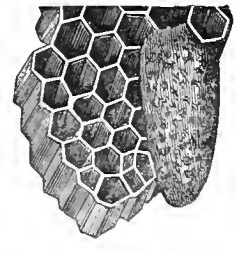
twenty. We have before said that the bees have the marvellous power of transforming eggs or young larvæ, which in ordinary circumstances would become common workers, into perfect queens; but how this wonderful metamorphosis is accomplished no one can thoroughly explain. We watch the bees at their work, and we see what they do; but to find out why their labour causes the change from a worker to a queen has puzzled the greatest anatomists and philosophers of all ages. In effecting their wondrous transformation, the bees work in gangs (in different parts of the hive), which appear to labour without reference one to the other.

What is the signal for commencing royal cells in preparation for swarming is not known; that it emanates from the queen is highly doubtful, since no sooner does she become aware of their presence, than she becomes frantic with jealousy, and rushes from one to the other in a most excited way, evidently determined on destroying the rivals she instinctively feels are being fostered in her court.

In commencing a royal cell in a full stock, the gang of bees commonly select a worker-cell near the edge of a comb either containing a worker egg, or a larva not more than three days old, or on an average not older than it may happen to be about five days after the egg's deposition by the queen. They then gnaw away the partition walls between it and the two cells immediately above or below it, throwing all three into one, thus making a large apartment, which however they somewhat reduce in size by thickening the walls with the wax taken from the partitions, and leaving the egg or larva lying in the base of it in a smooth circular bed. Into this, as they proceed, they inject a creamy-looking substance prepared in their own stomachs for its (the larva's) sustenance;* and presently the larva may be seen floating in a mass of what is called 'royal jelly.'

Day by day the bees watch over and protect the cell as it is being formed, lengthening and thickening its walls, and continually visiting its interior until the larva is about five days old, when being assured that everything within it is in perfect order, they close its end, and await the evolution of its occupant. In the meantime the larva will have greatly increased in size, and having assumed the caterpillar form, will, almost immediately on the completion of its cell, commence spinning its cocoon, as the silkworm does prior to becoming a chrysalis; and as this will occupy about twenty-four hours, the ninth day since the egg was deposited will have been attained. The worm will then repose for about sixty hours, during which time it will change to a nymph, or, in other words, it will become a white bee, and four days afterwards it will come into existence a perfect female or queen. The time given for each of these changes may vary with circumstances, cold may retard, or heat may advance either of them; but, as a rule, the perfect development of a queen occupies at least fifteen days, and on the sixteenth from the laying of the egg she may be expected to come forth.

We here give a representation of a queen-cell as it ordinarily appears on the edge of a comb; but it by no means follows that all queen-cells have that appearance, or are so readily recognisable. The bees often place them in most singular positions; we have found them on the floor-board of the hive, and on the sides of the frames, entirely disconnected from the comb; we have seen them in bunches, like grapes, four, five, and six together; and on one occasion we found, on the bottom edge of a partly-formed comb, no less than seventeen in an irregular row, each of which was sealed, and contained a maturing princess. Queen-cells, as a rule, are pendulous, hanging down from the face or side of the comb, but sometimes they project almost directly from the face of it; again, as a rule, they are scattered about the hive singly and in pairs, but, as before shown, they may be found in dozens; furthermore, they are usually built on worker-comb, but we have many times found them raised on drone-cells, although, in the latter cases, we have never known a queen to issue, and have wondered at the infatuation that could have made the bees act so foolishly.



Now, from the moment the queen-cells are commenced, or at least as soon as the reigning queen is aware of the fact, her majesty becomes filled with excitement, and would destroy them if she could; but the workers will not allow her to do so. She may rush from one to the other with malice aforethought to do mischief, but the gangs of workers surrounding them prevent her vengeance, while other bees, loyal though they are said to be, seize her by the wings or legs and restrain her. Even the so-called courtiers that surround her during her egg-laying pilgrimage through the hive, fawning upon her and preventing interference with her prerogative by the outside common herd, now assume a different and less courteous attitude;

* The quantity of food administered to a queen in her cradle is often greatly in excess of her requirements, whereas a worker larva has no more given to it than it can consume while imprisoned in its cell.

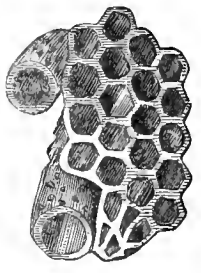
they attend and surround her still it is true, but the royal mistress of the hive is as a prisoner in their midst, and is not allowed liberty of action until swarming commences, and then she but too gladly rushes from the hive, anxious to escape from the indignity to which, for nearly a week, she has been subjected.*

It has been mentioned herein, that on or about the eighth day the embryo queen commences spinning her cocoon, which she does but imperfectly as compared with the workers and drones. These latter envelope themselves completely in tough silken cases, which they leave behind them when they emerge from their cells;† but the royal larvæ spin only sufficient to cover the head and thorax, and about one ring of the abdomen: and the reason suggested for this is as follows.

There is a law of primogeniture amongst bees as regards their royal issue which directs that their first-born shall rule, and that the survivor remaining in the hive after swarming has ceased, shall destroy her unborn royal sisters in their cradles; and it is supposed that the abdomens of the young queens are left unprotected by the silken covering alluded to, to enable the said survivor to dispatch them with greater facility.

It often happens that several young princesses are ready to hatch out of their cells at almost the same moment, in which case, if swarming has not ceased, they rush out of the hive pell-mell with the bees, and form rallying-points for several clusters, neither, perhaps, larger than a man's fist.‡ When more than one princess is left in a hive after swarming has ceased, each does its best to destroy her infant sisters in their cradles, and finally coming together they fight to the death for supremacy.

In their murderous onslaught on their unborn sisters, they take what one would call a mean advantage of the position of the latter, which are head downward in cells in which there is not room to turn about. They do not go to the head of a cell and unseal it, for if they did, the young queen within might be able to get out and make a fight of it, but they go to the side, at the part unprotected by the silken cocoon, and there biting away the waxen wall of the cell they take its occupant at a disadvantage, and stab her in the abdomen. The worker-bees then carry out the dead, and in a short time nibble away the walls of the cell until only a kind of acorn-cup is left, of which the engraving gives a correct representation.



Those of our readers who have never seen a fight between two queens can scarcely form an idea of the terrible nature of the conflict. Each being imbued with deadly hatred of the other, they rush together and are immediately locked in close embrace. Seizing each other by wing or leg, as opportunity offers, they curve their bodies and strive to the utmost each to sting the other in the joints where the legs spring from the thorax, and thus they writhe and struggle for the mastery. Finding their efforts fruitless, they, as if by mutual agreement, separate, and appear to try to evade each other, but being enclosed by the bees are unable to do so; and, as if feeling that death to one is inevitable, they again close, and the struggle is renewed again and again it may be until one of them receives a mortal wound, when the other is acknowledged the victor, and is permitted to reign supreme. In these contests, if one can seize the other by the base of the wing, she apparently obtains a great advantage, as while holding on she curves her body round the side and under the thorax of the other, allowing the latter to drag her about while she searches with the end of her abdomen for a vulnerable point in her (the latter's) armour; but a long time often elapses before the stab is inflicted, and exhaustion frequently causes them to separate.

Wonderful as the whole business of preparing a royal successor is, and considering the enormous labour of providing a multiplicity of princesses to ensure the safe advent of perhaps only one, there appears to be a weak point in it which we shall be pleased if any of our readers can help us to elucidate. It is well known that although twenty young queens may be brought to the birth, not more than two or three are usually required, either to go forth with swarms or reign at home, and in neither case is duality ever permitted. There can be no rival princess either in swarm, cast, or stock hive, each must have ONE only; yet when thus far assured of her position, it is imperative that she should incur the risks attending a wedding excursion.

It is well known that fertilisation cannot take place within the hive, and that hundreds

* Swarming will be treated of in next number of *Journal*.

† As there are from six to twelve or more generations of bees produced in hives yearly, and each bee leaves its silken cocoon in its cell, the discoloration and toughness of old comb may be readily accounted for.

‡ When these occur they offer an excellent opportunity for stocking nuclei for artificial queen-raising, as treated of in last *Journal*, since, if they are placed in small hives containing a little brood and honey they will almost certainly remain in them, and may be dealt with accordingly.

of young queens are annually lost when wooing in the air, and it is inevitable that in every such latter case the stock or swarm left queenless must perish (unless *aid* be given), neither having any possible means within themselves of restoring the sovereignty. This is a most interesting subject. It would seem that the proceeding would be more perfect if the wedding flight took place before a young queen departed with a swarm, that her fertility might be assured and the safety of the newly founded colony established at least for the time being, and for a similar reason, that fertility in the sovereign to remain in the stock hive should be established before her royal sisters were destroyed, so that an accident to her (*in the midst of dangers*) might not mean utter ruin to the colony. Is there — can there be in this a weak point in what is everywhere otherwise so perfect, so wonderful? or is it yet but another instance of our inability to recognise the beauty of His perfection who doeth all things well? In presence of this thought, Why do we ask the question?

SUPERING.

Supering is now the order of the day, and where stocks are strong and swarming prevented, there will be some as magnificent supers to grace the tables at the Alexandra Palace, in September next, as were ever thought admirable elsewhere. We hear of them in a confidential way, and cannot therefore be descriptive, but, as may be seen by advertisements, new honey, both in the comb and extracted, is quoted by the hundredweight, one successful bee-keeper acknowledging to the possession of a quarter of a ton. There are many, however, who cannot get their bees to take to the supers, although they have tried all the methods recommended, and the bees are numerous and show indications of overcrowding.

Glass supers give most trouble, as usual, and in many instances the bees have (as they often do) commenced to build upwards from the frames, or adapting-board, as the case may be.

There is no certain way of making bees take to supers, or keeping them at work when they are there. So much depends on the state of the colony and the weather, that no rules can be laid down on the subject. To enable bees to store honey in supers, there must be a greater ingathering than the necessities of the hive demand for daily use. This implies that honey must be abundant, and that there must be a large staff of supernumerary workers; and these three conditions being present, the supers should be convenient for the bees to cluster in, and sufficiently protected to enable them to generate heat and secrete wax easily. Attraction-combs are most useful in inducing bees to take possession of supers; they do not require fixing—indeed, as a means of enticing bees to the supers, it is better that they be but loosely suspended, as the bees, having a dread of anything insecure, will be the more certain to commence operations on them, and once having taken possession, the probability is they will continue their work. All that is necessary as a means of enticement is a slight wooden cross, on which should be placed some pieces of comb, as shown in the engraving (fig. 1). The long limb of the cross should reach the adapting-board of super, and the upper end of it should pass through a hole in its top. The pieces of comb should hang loosely, touching nothing but the cross-piece, and the 'attraction' will be as complete as is possible. A rough and ready way of achieving a similar object is to cut a twig from a branch having two or more shoots on its side, and on these shoots place the pieces of comb (fig. 2), treating its upper and lower ends as above mentioned. This method is used by the Egyptians for fixing guide-combs in their tubular earthen hives; the top being pointed and thrust upward into the clay (?), and the lower end being square and resting on the bottom of the tube.

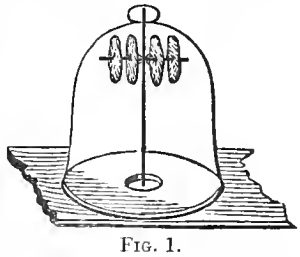


Fig. 1.

Fig. 2.

PROSPECTS OF THE BEE SHOW.

At length, as appears in another page, the Schedule of Prizes for the Autumn Show of the British Bee-keepers' Association has been determined on, and we trust the friends of bee-keeping will consider it an improvement on those which have appeared before. One notable feature we have had the satisfaction of introducing as regards hives, which is, that all those entered for competition in the various classes (for sale) shall be fitted with guides ready for use. This at first may see a trifling innovation; but as every exhibitor will be required to guarantee that he will supply hives to pattern, &c., it really means that the onus of fixing guides shall in future lie with the vendor, instead of the purchaser. This, we feel, will be a great boon, especially where hives are supplied to cottagers, or where the system is used for the first time; and as skilful hive-makers will be able to fix the guides at a minimum cost, one of the 'bothers' in the bar-frame system will be got rid of, and the principle will, we trust, prove more generally acceptable since, with very

little care, straight combs will be the rule and not the exception. The schedule has this year been most carefully prepared, and we think everything desirable has been provided for, even to the offering a prize for 'a hive on an entirely new principle,' which Mr. Hunter thought might elicit something, at least, novel. Mr. Hunter has also procured the inauguration of a new class, without entry fee, for the exhibition of hives, &c., of a novel, foreign, or historical description, whether obsolete or otherwise, believing that many interesting objects will be brought together. This is doubtless a good move, and we trust will be supported. The prizes for honey are liberal, as usual, and in addition to money prizes, cottagers are to have certificates to show after the money is spent; and we trust there will be not a few who will emulate the exploits of Mr. Freeman, the Slinfold Cottager, whose doings and winnings are recorded on another page. The advertisement of the Association will show that the exhibition will this year take place at the Alexandra Palace at Muswell Hill, on the Great Northern Railway, a fact which will, we hope, induce our Northern friends to appear in force without the dangers and difficulties consequent on the changes incident on the route to the Crystal Palace. The Alexandra Park has a most attractive feature in its commanding position and the *unrivalled panoramic view* which it affords, and its general effect is most pleasing.

Devoted as its outdoor specialities are to the cultivation and improvement of animals of all kinds, it must surely be a source of congratulation to bee-keepers generally that its board of management, with Sir Edward Lee as Secretary, has taken under its paternal wing the most useful of all known insects—the bee; and we are sure they will be pleased to know that Sir Edward has most courteously offered the greatest possible facilities for ensuring the success both of the show and the proposed manipulation of live bees. The indoor attractions of the palace are conducted on a most liberal scale; the railway runs directly into the building, vehicles are admitted to the drives in the splendid grounds, and the public may wander in, out, and about at their leisure without let or hindrance, until they choose to re-enter the railway-station; while in the meantime Messrs. Bertram and Roberts, the refreshment caterers, will take care of the inner man.

The prospects of the bee and honey show are improving daily, every facility is offered at the Palace, the weather is all that can be desired, bees are thriving beyond expectation, and thumping supers will be forthcoming such as will render the Alexandra show memorable in the annals of bee-keeping; and bee-keepers are smiling. We must not forget, however, that in carrying out the proposed exhibition there will be considerable expense, and a tremendous amount of labour, the bulk of which latter will fall upon our newly-elected Hon. Secretary; and we do most earnestly beg—as we would beg a personal favour—that bee-keepers will afford him all the assistance in their power in his endeavours to carry out the trust reposed in him. One of the first things we would ask on his behalf is, that he may be as speedily as possible relieved from all anxiety as to the funds from which the prizes are to be paid. We ask the friends of bee-keeping to remember the adage, that 'he who gives quickly gives twice;' and doubly thankful shall we be when we know that the Prize Fund is assured, and that no nervous fear will linger as an incubus to dull the energy of our new friend.

Our next anxiety is, that those who for any reason have withdrawn from the Association will take new heart, and, *for the sake of the cause*, strengthen the hands of the Committee and Secretary with their best help, bringing their friends with them, for the cause is worthy of support.

We publish the amended list of donations to the Prize Fund, and hope the bright prospects now in view will stimulate the friends of bee-keeping to greatly increase it.

Alexandra Palace Company	£25	0	0
Hooker, J. M.	1	0	0
Cowan, T. W.	5	0	0
Hunter, J.	1	1	0
Neighbour, A.	1	1	0
Hughes, W.	1	1	0
Jackson, F. R.	1	1	0
Edwards, C. H.	0	10	6
Bassano, W.	1	1	0
Smith, C. W.	1	1	0
Sturge, J. Y.	0	10	0
Bligh, Hon. and Rev. H.	1	1	0
Carr, W.	0	10	6

BRITISH BEE-KEEPERS' ASSOCIATION.

Extraordinary General Meeting.

An Extraordinary General Meeting of the members of the above Association was called at 15 Beaufort Buildings, Strand, on Thursday the 15th of June last, to elect an Honorary Secretary in lieu of E. L. Cleaver, Esq., resigned. T. W. Cowan, Esq., was in the chair, and the notice convening the Meeting having been read, it was proposed by Mr. Henderson, seconded by Mr. Walker, and carried unanimously, that the acceptation of Mr. Cleaver's resignation be confirmed.

It having transpired that Mr. Hunter had for some time acted as Hon. Sec. *pro tem.*, but that his duties would not allow of his taking any further action in that capacity, it was proposed by Mr. Abbott, seconded by Mr. Henderson, and carried unanimously, that the thanks

of the Association be accorded to Mr. Hunter for his services.

Mr. Henderson then proposed that Mr. Fox Kenworthy be the Hon. Sec. of the Association for the remainder of the current year; he had had a long acquaintance with Mr. Kenworthy, whom he knew as an enthusiast in bee-keeping, and as a gentleman well acquainted with accounts. Being also most energetic in his business habits, and having time at his disposal, which he was willing to devote to the interests of the Association, he felt confident the meeting could not do better than appoint him.

Mr. Atlee seconded the nomination, entirely supporting Mr. Henderson's observations, and Mr. Abbott most cordially approved of Mr. Henderson's nomination, and complimented the Association on having obtained the willing services of a gentleman so well qualified to fulfil the duties of the office. It was a signal piece of good fortune that in an extremity they had fallen on their feet. The Chairman having put the resolution, it was carried unanimously. Mr. Kenworthy having briefly thanked the Meeting for the honour conferred on him, the proceedings terminated; and the gentlemen forming the acting Committee proceeded to the consideration of the Prize Schedule, the result of which will appear on another page.

Committee Meeting, June 15th, 1876; present, Mr. Cowan (in the Chair), Messrs. Abbott, Atlee, Henderson, Hooker, Hughes, Walker, and the Hon. Sec. The Schedule of Prizes for the next Exhibition was considered at some length, and the Committee adjourned.

Committee Meeting, Alexandra Palace, June 20th, 1876; present, Mr. Cowan (in the Chair), Messrs. Abbott, Atlee, Hooker, Hughes, and the Hon. Sec.

It was resolved, 'That the thanks of the Association be accorded to Mr. Cleaver for his past services.'

The proposed Schedule of Prizes was discussed and amended, after which the Committee endeavoured to obtain an interview with the Manager of the Alexandra Palace Company, but without result, and the Secretary was instructed to write him on the subject of the requisite arrangements.

Committee Meeting, June 27th, 1876; present, Mr. Cowan (in the Chair), Messrs. Abbott, Edwards, Henderson, Hooker, Hughes, Hunter, Neighbour, Walker, and the Hon. Sec.

It was resolved that the Exhibition be held at the Alexandra Palace, on 15th, 16th, and 18th September next, and the consideration of the Prize Schedule was proceeded with and was finally settled. (See advertisement.)

WEST OF ENGLAND APIARIAN SOCIETY.

We would call the attention of our readers to the Prize Schedule of the West of England Apiarian Society in our advertising columns. For so young a Society the prizes offered are very good, and we trust will be well patronised by exhibitors. We are informed that those who have honey to dispose of cannot do better than send it to Weston, where it will meet with a ready sale among the fashionable residents of that delightful watering-place.

Mr. Poole, the Hon. Sec., suggests that as he has provided more than two hundred gentlemen gratis with patterns of his perforated zinc, they should each send him at least 1s., which would materially help the prize fund.

DEVON AND EXETER BEE-KEEPERS' ASSOCIATION.

Arrangements are being made to hold the First Bee and Honey Show of the Association early in August. The Exhibition will most likely be held in connexion with the Devon and Exeter Botanical and Horticultural Society. Prizes will be offered for open competition for hives, honey-slingers, &c. A Honey Fair will be held at the same time. Prize schedules and entry forms may be obtained of the Hon. Secretary on receipt of a stamped directed envelope. Entries close on the 24th day of July. In order to offer liberal prizes a subscription list has been started, and donations to the same will be thankfully received.—Wm. N. Griffin, *Hon. Sec., Rock House, Alphington, Exeter.*

CALEDONIAN APIARIAN AND ENTOMOLOGICAL SOCIETY.

The sixth quarterly meeting of the Caledonian Apiarian and Entomological Society was held in McInnes' Hotel, Hutcheson Street, ex-Baillie Lauchland, Kilmarnock, in the chair. The minutes of last meeting having been read and approved of, Mr. Bennett intimated that Mr. Wilkie and he had, in terms of remit made to them, waited upon Mr. Maxton, one of the Directors of the Botanic Gardens and Crystal Palace, who after repeated interviews has kindly consented to give space and every facility for the show on 6th, 7th, and 8th September, also free admission during those days to fifty exhibitors of the Society; the use of the large lecture-hall will be granted should the Society require it. The Committee appointed at last meeting, consisting of Messrs. Lauchland, Sword, Thomson, Bennett, and Wilkie, laid before the meeting the revised prize list, and with the addition of the clause 'three-fourths of all honey-comb must be sealed' to the rules for competitors, the prize schedule was unanimously agreed to. Mr. Maxwell proposed that the Egyptian bee should not be allowed in competition, owing to its reported ferocity, but after discussion amongst the members the motion was withdrawn. The Secretary reported that he had received favourable replies from most of the gentlemen who had been asked to become judges, and that Mr. Shearer had further proposed to bring with him his own observatory hive, and fit it up at his own expense should the Society desire it. The Secretary was instructed to communicate with Mr. Shearer and convey to him a hearty vote of thanks for his very kind offer, and to accept of the same. Mr. Bennett reported that Mr. McPhedron had also made a similar offer to him verbally, which the Secretary was also instructed to accept. The Society's observatory hive supplied by Mr. C. N. Abbott was exhibited and elicited much comment amongst its members, who expressed themselves highly satisfied with it, and Mr. Thomson was instructed to have it filled with black bees, headed by a pure Ligurian queen, and the hive placed on its stand in the Crystal Palace. Letters from Sir John

Lubbock and the Rev. W. R. Saunders were read, in which they express great regret at their inability to lecture to the Society during the Show, the former owing to his numerous engagements during the meetings of the British Association, the latter owing to a bronchial affection. The Secretary was instructed to communicate with some other eminent naturalist on this subject, and a sub-committee was appointed to make the necessary arrangements to have this object carried out in a satisfactory way. The Secretary reported he had been communicating with the various Scotch Railway Companies to extend the time of return tickets of exhibitors and visitors to the show, and that he had received replies that this would be granted on the return portion of the tickets being stamped by the Society at the Show. A sketch of the proposed medal was submitted by Mr. Douglas, which was much admired by the meeting. The die was ordered to be cut, and a Sub-Committee was appointed to look after the stamping of medals. Mr. Butler proposed a vote of thanks to the Chairman for presiding. The next meeting takes place on 6th September.—*Glasgow, 21st June*, 1876.

A PROLIFIC STOCK.

Mr. Charles Young, of East Coker, near Yeovil, Somerset, informs a contemporary that he had four swarms from one old stock within nineteen days. They came off as follows:—May 28th, first; June 10th, June 12th, and June 16th. They were hived in separate skeps, and all appear to be doing well.

INVITATION TO A BEE.

O come and linger in my bower, sweet bee;
Come, gather from my sweets and hum to me:
I love to hear thy busy, cheerful wing,
Thou art my friend, and I am thine, dear thing.
'Tis true I am thy robber, when maybe,
Thou therefore art the greater friend to me;
But yet, for all my avarice and greed,
I care for thee when thou hast special need.
Come, then, sweet bee, still linger in my bower,
And bless with kisses every opening flower.
Thy merry note is music to mine ear,
And why should mutual friends each other fear?
Then do not hurry off from bush to tree,
These buds are fragrant, and they bloom for thee:
I need not call them *mine*, for they are *thine;*
Stay yet awhile, and from their nectars dine.

THE BEE'S REPLY.

But thus replied the busy bee,—
'Your views and mine do not agree;
I have important work to do,
And may not loiter here with you.
I live to work, and work is bliss:
I seek no greater joy than this:
I must not waste a sunny hour,
Or lose the nectar of a flower.
Thousands of little ones at home
Are waiting now, and bid me come;
I hear them tapping at their doors,
And I must hasten with my stores.
Good-bye; longer I cannot stay,
But hope to come another day.'
With one more blossom, one more pull,
Her trunk and pockets too are full.
Now, with her load I see her rise,
And straight with haste she homeward flies
And all her journey through she sings,
Rejoicing for the sweets she brings.

G. Minson.

Correspondence.

**** These columns are open to Subscribers, so that their queries, replies, correspondence, and experiences, may be* fully *and* faithfully *recorded; and for the discussion of all theories and systems in Bee-culture, and of the relative merits of all hives and appurtenances, that the truth regarding them may be ascertained. The Editor, therefore, must not be expected to coincide with all the views expressed by the various writers. All Correspondence is addressed to the Editor.*

BEE PROSPECTS.

No. I.—Artificial Pollen.

With the prevailing cold weather which every bee-keeper has experienced, and nothing but misfortunes to detail, which is almost disheartening to many, and while brooding over bad prospects, one is inclined to fall into a state of despondency. But why brood over imaginary evils? Brighter days are surely in store; and if stocks are a little backward so is the pasture. A little patience and attention to the wants of the ever-industrious bee will work wonders, and by September our tables may yet be well loaded with the beautiful supers of honey, which at present lie hid under the sod; whence, shortly, flowers will spring forth, filling the air with fragrance and making the fields a panorama of beauty with their delicate hues, secreting the pure nectar, when the bee will prevent it wasting on the desert air, filling the heart of the bee-keeper with gladness and veneration. Although it is now the middle of June, and as yet the bees have scarcely had a day that obtained them honey, yet, where the wants of the bees have been attended to, two weeks' fine weather will make up for all the trouble. When I say 'wants,' I mean 'judicious feeding and artificial pollen.' On this last subject I would have liked to have communicated to the *Journal of Horticulture*, to refute Mr. A. Pettigrew, where, in a late number, he denounced its value; but, unfortunately, for a considerable time past any MS. I forwarded to that periodical, in discussion, has been suppressed. It appears that no one is allowed to correct that gentleman's blunders and absurdities; but, fortunately for the bee-keeping fraternity, they have a counteractant in the admirable and able writings of the Editor in the *British Bee Journal.*

As regards peasmeal as a substitute for pollen, it is first class; and perhaps I may be allowed to give one example. In the beginning of April of this year I gave to one hive, or rather to the option of all hives, a pound of peasmeal; but only one hive availed itself of it. About seven fine days in the beginning of April are, in fact, nearly all the bees have had; but with early breeding it appears that, by the end of April, the store of pollen was exhausted; and although plenty of honey was in the hive breeding was at a complete stand-still, and in the hive that carried in the pound of meal in one day not a single cell of pollen could be seen. And as regards Mr. Pettigrew's statement, that bees clog their hives with pollen, I have never seen it: where the hives were in a prosperous way with honey it

was different. Although peasmeal is, in a great measure, new to many bee-keepers, still, so far back as 1854, I learned, to my astonishment, that bees would utilize it; and the anecdote may not be out of place to mention here. A troublesome bee-keeper, a new beginner, near me annoyed me much asking foolish questions. Amongst these was one about the carrying of honey. By answering him the foregoing question he afterwards tried to taunt me, that his bees were superior to mine, as his only carried honey; but by-and-by the increasing population in my hives drew his attention, and he had to confess that mine were ahead of his, and he wished to know the reason. I replied that I fed them with *pease-brose;* so, on the first day of April I observed him approaching. I mixed some peasmeal with sugar-syrup and laid it in front of the hives, expecting the bees would lick the syrup and leave the meal, hoping it would be sufficient to fool my friend; but judge of my surprise when I showed him the feast on peasmeal, that the bees had actually licked it clean up, and it has always since proved beneficial.—A Lanarkshire Bee-keeper.

SPRING EXPERIENCE AND AUTUMN PROSPECTS.

Having successfully wintered my bees, and now that they are in working trim, I thought I would give you a little of my experience with some of them this spring.

Having several stocks that I wanted to super, and not wishing them to swarm, when they were getting full I examined them, cut out queen-cells, and put on some $\frac{5}{2}\frac{5}{4}$ perforated zinc over the whole of the top of the hive (I have altered my opinion since last year, after hearing what Mr. Poole and Mr. Cowan said about it, and thought I would try it again), and then put on the supers, and now the bees are up in them finely; and, if this lovely weather continues, we may yet get some fine supers of honey-comb. One hive in particular, a long one, 2 feet 6 in. long, inside measure, into which, last autumn, I put two stocks of Ligurians—each having an entrance of its own, and a partition-board between them with holes covered with perforated zinc—about three weeks ago I took the queen away from one side and then removed the partition from the centre, and just sprinkled the bees with a little syrup, and they united quite peaceably, and are working in supers. It is a glorious sight to see them at work, they go at it with such vigour, there can be no mistake but that they mean to get what they can, and have done a great deal already. I have two other such hives into which I have removed stocks this spring, and filled them up with combs of brood from other hives; one of these took it into its head to swarm last week, so a night or two after I and my boy gave them a young fertile queen, and went over the hive, which contains about twenty frames, taking each comb and shaking off the bees, then extracting the honey and cutting out queen-cells, of which there were more than twenty, and replacing each comb; and when we had done we had over twenty pounds of very fine honey. I have several times given young fertile queens to stocks, without one failure, in this way: Take three frames of comb, bees, &c., out of hive, and hang them in a small hive close by, then take the young queen on her comb and with her own bees (the frames are the same size as the hive to which she is to be introduced) put them in the hive, afterwards shaking the bees all off the other combs, cutting out queen-cells, &c., and from being shaken off suddenly the bees go and join the young queen, and all is right at once, even without losing a day for the queen, who begins at once laying her eggs. At the end of the job there is a comb or two to spare which can be given to other hives.

And now that it is getting near the end of June all my stocks that I want to be gathering surplus I mean to double up as much as possible, so that for the remaining part of the season they may, by being extra strong, do a lot of work in a short time, and so save the trouble of uniting at the end of the season.—A Warwickshire Bee-keeper, *Honey Cott, Weston, Leamington, June 27th*, 1876.

EXPERIENCE.—THE LITTLE WONDER.

If you think the insertion in your valuable *Journal* of some of the following remarks will be any encouragement to some of our almost broken-hearted bee-keepers who have lost so many bees during the past season, you may, if you think proper, make use of them.

I have taken in your *Bee Journal* (which I strongly recommend to all bee-keepers) through the medium of the Melksham Bee Club, ever since it came into existence. Contemporary with it I bought a stock of black bees with Ligurian queen; but my progress in bee-keeping was very slow. By some means or other that pest foul brood crept into my small apiary, so that many a time had I to cut out and throw away the whole contents of my hives.

The articles on foul brood in your *Bee Journal* used to occupy my first attention; but I can now say that I am perfectly free of that abomination.

Last autumn I had six stocks of bees, I took away about 20 lbs. of honey, and fed them with just as much syrup as I thought would maintain them through the winter. About Christmas time I, with feelings of great anxiety, lifted them off the floor-board to see if there were any indications of unhealthiness. To my delight I found everything satisfactory. I simply swept away dead bees, &c., and replaced the box hive (no straw skeps for me). When the frost and snow had disappeared, and the sun began to shed forth his benign influences, I examined them again, swept away the few dead bees that were there, and gave them a little stimulating food, made according to prescription in your *Journal*, and with feelings of mingled hope and fear waited the result. In March and April they began to show themselves active, and many of them challenged the bleak winds in order to obtain pollen from the crocus, &c.

May 14th a swarm came out, but the weather being cold and cloudy the queen must have dropped and died; the bees went back again. They then began to hang out (in idleness) around the mouth of

the hives. From this I drew the conclusion that the queen was lost. I examined the hive and found this to be the case. Fortunately there were royal cells in progress. I at once made an artificial swarm, and put it in the garden, and every day am expecting them to swarm again. I have had a second and third swarm from whence this artificial swarm was taken.

To cut the matter short, Mr. Editor, for I fear I am trespassing on your time, I had six stocks in the spring, and have had twelve swarms from them, although three of them were supered. Two of them are out of one of Pettitt's Observatory hives, the second swarm (a fine one too) came out yesterday at nine o'clock. I boxed them right, and they are doing well, and at eleven o'clock I went to examine the Observatory, and there (to my surprise) found another fine princess already running about. I might as well remark that the bees in Observatory led off on the 13th, but her majesty did not appear to me to be able to find her way out.

Now, with regard to the bees in the Observatory, First of all, about three weeks ago a bee-keeping friend called to see me. We went through the hives and found them in a very prosperous state, the worst, if any — the one that had foul brood —we put into an Observatory, so that I might watch it. One comb we felt inclined to throw away, but we risked it, and the young brood hatched out well.

A fortnight ago to-day the queen (pure Ligurian) led off first swarm; the bees in Observatory were then four days without a queen. On Whit Monday a young princess was born; but the bees in the meantime had been so busy depositing honey, that I do not think she had any empty cell in which she could deposit her eggs; therefore she came out yesterday. Now again the cells seem so filled up that I really do not see what use the young princess will be. Do you think I had better extract some of the honey, or should I transfer them into box-hive again, and give them some empty frames? I think I ought to have a honey extractor; but Starling is too cumbrous and expensive. Is there any other you can recommend?—Robert Bagg, *Bath, June* 15, 1876.

[We think, if expense is an object, our Little Wonder would suit our correspondent. We append a few unsolicited opinions of it :—

'Your Little Wonder is certainly a wonderful little beauty. I wish I had plenty of use for it, it does its work so clean and handsome.—J. S. Stevens, *Nunney, Frome, Somerset.*'

And again—

'Your honey extractor has been tried to-day, and is a perfect success. — Bridgwater, *Cannington, June* 12, 1876.

A third—

'I was transferring some bees from skeps to a frame-hive on Monday, so must needs try your Extractor; and it answers admirably—gets the honey out as clean as possible.'—G. Baker, *Harlow, Essex.*

A fourth—

'The Extractor arrived yesterday, and I am very much pleased with it. I emptied one hive last night, and found it work very well indeed—turning out two jugs of honey in a very short time.'—A. G. B., *Liverpool, June 28th*, 1876.]

WHAT A COTTAGER CAN DO.

We have much pleasure in publishing the following list of prizes gained by Matthew Freeman for honey shown at the flower shows at Slinfold, Horsham, Crystal Palace, &c.

Rectory Grounds, Slinfold.—1864, first prize, 2*s.* 6*d.*; 1865, first prize, 3*s.*; 1866, first prize, 3*s.*; 1867, first prize, 3*s.*; 1868, first prize, 3*s.*; 1869, first prize, 3*s.*; 1870, second prize, 1*s.* 6*d.*

Major Bunny's Park.—1872, gained first prize, 3*s.*

Horsham Park.—1873, at the Horsham Horticultural Society's Exhibition, for the best glass of honey in the Cottagers' Class, first prize, 10*s.*; also in a special class, given by Mr. Cowan, a box hive, value 15*s.*

Manor House Grounds.—1874, at the Horsham Horticultural Society's Exhibition, in Cottagers' Class, first prize, 10*s.*; also in a special class, given by Mr. Cowan, a straw hive and cap and floor-board, value 7*s.* 6*d.*

Crystal Palace.—1874, at the Crystal Palace first Great Exhibition, for the largest and best exhibition of super honey in comb, the property of one exhibitor, and gathered by his own bees, held on September 8th, 9th, and 10th (Cottagers' Class), second prize, 1*l.* 10*s.*

Manor House Grounds.—1875, at the Horsham Horticultural Society's Exhibition, in the Cottagers' Class, third prize, 5*s.*; also in a special class, given by Mr. Cowan, a straw hive and cap and floor-board, value 7*s.* 6*d.*

Crystal Palace.—1875, at the Crystal Palace second Great Exhibition, for the largest and best exhibition of super honey in comb, the property of one exhibitor, and gathered by his own bees, held on September 21st, 22nd, and 23rd, third prize, 1*l.*

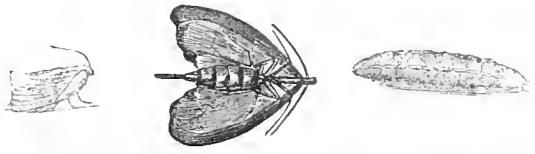
Mr. Freeman has a quantity of pure virgin honey always on hand for sale, orders for which (from 1 lb. to 3 lbs.) will be considered a favour; and we hope the publicity given to his successes will bring him plenty of orders, and induce others to emulate the achievements of the Cottage Bee-keeper of Slinfold.

WAX-MOTH.

I shall be very much obliged if you can enlighten me upon the enclosed. Upon going to look at my bees the morning before last I picked up, close to the alighting board of the old hive, the dead grub I now send, together with the young bees enclosed in that half of the box. I watched and saw two bees fly off the board with another large grub; but apparently it was more than they could manage, all three coming to the ground a few yards from the hive, when one bee flew off, the other clinging so fast to the grub that I had to remove it with a small stick before securing the grub. I showed them to a very intelligent and practised bee-keeper, who could give me no information on the subject, but came down the same evening, and examined the hive; when we took from the edge resting on the floor-board three more of the same grubs (those enclosed in the pill-box), one of which I see has since turned into a chrysalis. We could perceive nothing amiss;

the bees were very numerous and busy. Yesterday no more of *débris* was to be seen, but this morning I have again picked up a little, which I also enclose. I had a splendid swarm from this hive Monday 12th, which are strong and working well; but the cast has not yet come out. Do you think there is any mischief going on in the hive, and what should you recommend me to do? Unfortunately the hive is only one of the old-fashioned straw ones, which makes it difficult to examine. Will you also tell me what is the fair price of pure-drawn honey taken this season? —WILTSHIRE.

[NOTE.—The worms are the larvæ of the wax-moth; they live upon the wax of which the comb is formed, preferring the bases of the cells; and they gnaw long sinuous passages through and through the combs until often they are quite destroyed. We here reproduce engravings of the male and female moths and the destructive worm. The



female has a long ovipositor, with which she is enabled to deposit eggs in crevices from which the bees cannot dislodge them. In straw skeps the point of junction of skep and floor-board is the favourite place of deposit, and when the egg hatches a minute worm appears, which speedily finds some waxen particles on the floor-board to live upon; and as it moves round the rim of the hive it spins a fibrous trail, from which the bees have great difficulty in dislodging it, because their own feet become entangled in it. When in the trail—which may more properly be called a tunnel—it moves with great rapidity, so that the bees cannot easily capture it. In America it is the greatest pest bee-keepers have to contend against. The engravings are life-size. Drawn honey (extracted or run) appears from advertisements to be valued at from 1*s.* to 1*s.* 6*d.* per pound.—ED.]

LONG'S COMB-FOUNDATION.

I was duly in receipt of yours of the 26th instant, as also the small sample of Long's (?) Foundation Comb. It is a most beautiful production, and I would not have cared had I been swindled out of 2½ dollars extra had I got sheets the same as the sample you have sent me; but, to be both swindled in price and material! Well, say no more about it; but you are not for a moment to think that I attach any blame to you. I only wrote that you might notice it in the *Journal*, so as to prevent others being sold as well as myself.—JOHN WILKIE, *Gourock*.

SYRUP.—WAX-GUIDES, AND HOW TO MAKE THEM.

My eight stocks are all alive, three very weak ones I have kept alive by feeding. By-the-by, I would recommend to those to whom a penny per pound difference is not a material object, to use Finzel's Bristol sugar for syrup, the cleanest, purest sugar in the market, and no one can fail to make the most splendid syrup with it. I give 4½*d.* per pound for it. I have, till I thought of that sugar, had no end of waste and difficulty. I strongly believe that the cheap loaf sugars are by no means free from the lime used in purifying them; for when I have made experiments, I have found with syrup which after a day or two's standing has deposited enormous quantities of sugar, that a much larger quantity of acid has at once cleared it up. With Finzel's sugar, use the proportions you name of sugar, water, and vinegar, and you have a first-rate syrup.

Please send me a dozen Leaflets; you are quite right in saying that they are worth much more than we pay for them. I have with my own hands made four hives this long winter, all like your prize hive of last year. I have made them more substantial than yours; indeed, I can hardly lift them.

By-the-by, is this a 'wrinkle?' In making wax-sheets I have been trying various woods; and if you have not essayed a thin piece of common mahogany, I recommend you to do it. It absorbs the water most capitally, so much so, that you need not even wipe off the excess of moisture before dipping the spatula, which is a quarter of an inch thick, and therefore making only two sheets at a time; but for a novice that is enough. However, if plain sheets are equally good as impressed ones—and I cannot see why, if they are thin, like Mr. Long's—they should not be, I can put amateurs up to doing their frames quickly, using a piece of mahogany with a rabbet to it, to prevent it going too far on the underside of the frame-bar, as in your diagram this month; in fact though, I use a piece, a transverse section of which is here given, the projecting edge preventing the square mahogany going quite half way on. Dip this in cold water, wipe it or not, as you like (there are no bubbles), dip your brush into the melted wax and paint from one end to the other, you can do them as fast as winking. The bar comes off quite easily, but I always pour some cold water from a water-pot along the channel from one end to the other. I have done scores of frames and super-sections; but alas! no swarms yet.

This description takes long to write, but in practice is as easy as anything can be. You can get the thinnest possible wax-guide, and you can paint it over and over till you have the thickest. I got a piece of gutta-percha and impressed it while slightly softened in warm water, then nailed it to a bar of wood, and used it as above, and got the frames filled at one stroke with impressed wax-sheets.

The impression is not quite sharp, of course, but is sufficiently so. Water adheres slightly to gutta-percha.

I have not forgotten your junior's kindness in printing the bee cuts for me, and I could tell you a long story of the amusement caused by them at our spelling-bee. I gave a long speech at a late spelling-bee, and recommended my 300 hearers to take the *British Bee Journal*. We have had no swarms yet in these parts.—J. LAWSON SISSON, *Edingthorpe Rectory, North Walsham*.

LIGURIANS.

I remarked in the January number that we should find our stocks short in numbers, and I am one of those that have proved it too true, having lost all of my so called English black bees, not having a single stock left; but to my surprise the Ligurians turned out a beautiful swarm, 30th of May, and a second swarm equal to the first on the 14th of June. The first swarm was safely hived in a straw hive by my son, a boy not eleven years old, until I came home in the evening, when I put them in a bar-hive, and I expect a swarm from the first swarm, as I gave them plenty of comb. I believe the Ligurians are better or faster workers. The black bees did well until the last fortnight in February and the first fortnight of March, and then during the changeable weather they got away from the hives and never could return. This would dishearten us did we not know that we live in a world where changes are of every-day occurrence. Great numbers have been lost in the neighbourhood, and it is remarkable that I have seen scarcely a queen wasp and know of no nest anywhere. If destruction of wasps has anything to do with prosperity of bees, then I have done an unusual share of killing them. I hope, however, we shall have prosperity for the next seven years with our bees if we are alive so long. It is a first-rate time for them now. As a rule I shall use bar-hives for the future. I believe it matters little what thickness they are from half an inch to an inch board. I believe the standard hive to be the nearest to what I am using. I don't believe in long bars, I would rather take the views of the Cardiff bee-keeper in a former *Journal*.—A. Whitehorn, *King Somborne, Mid-Hants.*

P. S.—Just one thought more: would it not be well for subscribers to report in your valuable *Journal* each one his losses as well as his gains, which I believe too many are backward to do.—A. W.

A MYSTERY.

Can you or any of your readers explain the following mystery:—

May 10th.—Removed queen from an infected hive.

23.—Caged three queen-cells found in same.

27.—Liberated one princess; removed the others.

June 1st.—Found princess cast out dead, and apparently dead some days. Surprised to find *three new royal cells* with grubs of four or five days old, and no other eggs or grubs in hive. Query, whence came the eggs from which these grubs were hatched?—W. R., *Dundee.*

[We can only suggest that a fertile worker must have been present in the hive, and that she killed the princess and deposited some eggs which the bees have attempted to utilise. We have requested our correspondent to inform us of the result of the attempted queen-raising. —Ed.]

EASILY UNDERSTOOD.

A Somersetshire correspondent writes:—

'I recently asked a farmer's wife why she did not keep bees, when she replied, "My husband can't bear them, and I have always heard that they never do well if you don't like 'em!"'

Foreign Intelligence.

FRANCE.

The Société de la Gironde of Bordeaux has voted a Gold Medal of Honour to M. Drory, professor to the Society.

The *Apicolteur* publishes the rules for the forthcoming International Exhibition to be held in Paris from 15th August to 15th September next.

ITALY.

The most adverse weather prevailed during last month, and disasters are reported to the Association from many quarters.

In a great many cases, new and promising swarms have been unable to obtain the necessary food for daily consumption, and perished through starvation. In many other instances, young queens have been prevented from taking their wedding-trip, and thereby greatly retarded their progress.

SWITZERLAND.

A meeting of Apiculturists held at Lausanne on the 19th April, resulted in the Constitution of a Bee-keepers' Association for the five French Cantons.

Echoes from the Hives.

35 *Mount Street, Chapel Fields, June 18th.*—'The echo from my hives is one continuous hum of satisfaction at the beautiful weather we are just now experiencing, though it has been on the whole poor bee weather during the present season, and they will so far yield but small profit to their owners. As I informed you, the bars you sent me fitted the boxes to a nicety, and I found the gauge extremely useful in fitting them into their proper places. To prevent their shifting, I made holes on each side at the ends, into which I placed small wire nails, which can be easily and quickly drawn by the finger. I tried to drive the queenless stock, but having no leader, they would not drive; so as they would not go up, I had to make them come down by means of puff-ball smoke, and joined them to a weak stock. I then fixed the combs, with some others I had, into the bars, and having all ready, I was naturally anxious to drive a couple of swarms from my strongest stocks to put into them, but bearing in mind your advice not to be in too great a hurry, I waited till the 29th of May, when the weather being favourable and drones in plenty, I drove two good swarms into empty skeps, which I set on one side till the evening to be sure that I had the queens all right, and then shook them out in the ordinary way and placed my bar hives over them, taking proper precautions that none should be crushed by the bottom bars. These they ascended into quickly, and with much less loss of life than takes place in ordinary swarming, and have worked well in them ever since. One of them I placed where the old stock stood, from which they were driven, and the other in the place of a populous hive to be strengthened. I see you object to the first proceeding, and I now know the reason. The one removed though strong was almost entirely inactive for several days, though well stocked with honey and bees, and I think they would have suffered severely if I had not placed water near the entrance in an old sardine-box filled up with moss and small stones, of which they partook eagerly—of course I mean the water, and not the small stones or moss,—and are now doing well. Will you kindly inform me how to fix bars in a straw hive so as to make them sufficiently rigid? I have a cylindrical straw hive, which although it has been several times

nsed is quite sound and free from wax-moth, and I should like to fix bars into it if I can do so successfully. Straw has been worked into the crown, leaving a hole for supering.'—C. SHUFFLEBOTHAM.

[Provide a hoop about two inches wide cut from a cheese-box of the same diameter as the hive. Pierce the hoop with holes near its lower edge that it may be sewn to the straw-work of the hive. Cut off the crown of the hive quite level, and sew the hoop to the top of the ring remaining, so that it shall stand three-quarters of an inch above the straw-work. Then take a length of cane of ¼ inch diameter and lay it all round inside the wooden hoop, cutting it to fit, to form a bearing for the bars to rest on; then cut your bars of lengths to fit and keep their distances, and secure them by pins thrust through the hoop *from the outside*.—ED.]

Somerset.—'The inconvenience and loss often arising from the use of the old straw-skep have been forcibly illustrated in my neighbourhood during this month (June). Swarms have been wandering about in all directions, to the loss of the owner and the gain of those who captured them. Cottagers are waking up a little. By lending books, distributing the Crystal Palace Leaflets, and visiting all the humble bee-keepers who come within my ken, a few have been induced to try the improved hives and to take a more lively interest in their stocks. Swarms have been very late, the principal outcome being during the third week of the month, and prices have gone down in consequence. I had 1*l.* each for those I took in May, but now plenty are to be had at half that sum. I had a queenless stock in a skep several days, and put them into a bar-frame hive a few days ago, for the purpose of supplying the deficiency. They went off in a body, however, and joined another stock. The crowding that ensued drove out a princess, which was literally taken into custody by a worker who tugged at one of her wings to prevent her from flying whilst she rambled about the hive. So I captured her ladyship, drove a swarm, and put her in with them. I am glad to say she is going on all right. While without a queen, the stock built three splendid white combs and stored pollen in a few dozen cells.'

Bath.—'I herewith send you one of my bar-frames as a pattern. I should like to see uniformity in bee-hives and bee-furniture. My bees seem to be doing first-rate with all their drones. I guess Nature's work is the best in the long run, but I don't like them, they have such a powerful deep bass voice, which, for aught we know, might tend to promote the delight of the little hard-working sopranos.

'This weather is all that can be desired; I hope it will tend to stimulate those who began to flag.

'I have just put supers on two young swarms which began to hang out in idleness; they are up working in them already. One swarmed on the 21st of May, the other the 28th. Some of my friends are astonished when they come into my little garden, which is about 30 ft. by 20. They want to know where the bees get the honey from, but if this weather continues I shall want to take away plenty.'—R. B.

Blandford, Dorset.—'The other day I found in one of my bee-houses a queen wasp building a nest underneath the floor-board of one of the hives. There was a small piece of comb and grubs in it. Rather dangerous neighbours for a stock of bees. My bees are breeding and collecting honey fast now. Our principal honey harvest is when the lime-trees are in bloom.'

Birmingham.—'My bees seem to be going on pretty well now, but every now and then I find two or three grubs lying on the floor-board; and during the late cold weather I found scores of bees, apparently too weak to creep into the hive, as they came home and fell about the ground under the hive, &c., while laden with pollen; but when picked up and put on the floor-board, they crawled in.

Philipstown, Ireland.—'I think it would be well, from time to time, to go over the most essential points of bee-keeping in the *Journal*. They would be new to many who may not have the good luck to possess the early volumes.'

Ayr.—'I am in despair about my bees, and see nothing but an utter failure this season, even if I can keep them alive. February was mild, and they looked well and fed well. March was snow, frost, and cold wind. April ditto. All through May except the 13th, it has been very hot and bright during the day, hard frost at night, everything dried up, and not a flower or blossom of any kind. I have fed constantly, but the bees seem to be living from hand to mouth, and to get nothing outside. I see young bees; but in two hives the young brood are put out on the board in front.'—R. D. F.

Great Marlow.—'A good piece of fun took place close to Marlow this week with a swarm of bees at a public-house on the Wycombe Road, which went into an apple-tree. They hived it, and the bees left, and then went into an old chimney; there had not been a fire in the room it belonged to for some time. They took off the chimney-pot and some tiles, but could get no bees out: and then the man who was taking them recommended a fire in the chimney. The room was the bed-room of the man and his wife, and the chimney was stuffed up with straw. No sooner had they taken out the straw than down came the swarm into the room. The husband says he tried to go to bed, but had bees walking about him all night. In the morning the poor bees were unceremoniously killed in all directions or driven out.'

Nunney, Frome.—'My hives are pretty full, but it's a queer season again—such cold nights. I met with a sting or two the other day. It put me in such a state I was never in before with it: it frightened me rather. I was all over from head to foot with a stinging rash. I could have rubbed myself to pieces, it was so irritable for an hour or so; and such a stinging, grating pain in the region of the heart about every half minute, as though something hard was passing: for an hour it made me very bad. Can you account for it in any way? It makes me rather nervous with them. I don't mind the pain of stings, but the grating pain in the chest frightens me. My flesh was as hard, and swollen all over me, as though I had scarlet fever. I have often been stung, but was never like it till the last twice, having once before been stung in the face and head, which was like a pudding for three or four days.'—J. S. S.

[NOTE.—There are cases in which the bee-poison is injected directly into the circulation, causing acridity in the blood, which affects the heart, and creates spasms which might prove fatal. The symptoms are usually a painful sense of suffocation through muscular contraction of the chest, with more or less pain at the heart. The red rash was the evidence of Nature's effort to throw off the poison through the skin. Ammonia in the form of spirit of sal volatile, taken in doses of half a tea-spoonful in a wine-glass of water, at short intervals, generally affords relief.—ED.]

Droitwich.—'The only remedy for bee-stings that I know of, and that I can speak of with confidence, is liquor potassæ. I have frequently used it, and applied it to at least half a dozen people—men, women, and children. It has never failed. The only condition,—put it on immediately. It is useless if put on, say, five minutes after being stung.'—W. B. W.

Bedford.—'My bees have swarmed nicely, and were safely put in. As the two first hives swarmed each on the bough of an elm-tree above the hives, I was obliged to get a villager accustomed to bees to take them for me; but he could not understand it to be possible to cast them on the ground before the hive as you directed me. I made him take them in a large bell-glass, and turn them down on the top board, through which they descended, and at once began on the waxed frames. The next morning,

with swarm No. 2, in the same place, I had more difficulty with. the man previously had being out at the moment, and nothing could persuade his substitute that it was possible in any way to put bees into such new-fangled hives. However, the swarm was so very large that it filled a straw skep; and we had some difficulty in inducing them to leave it, although, after all, they did so. The next I took myself from a currant-bush, and put into your Crystal Palace hive, where they are working well. The No. 2 swarm is so large that it has nearly filled the hive in this time with comb, all quite straight.'

Dudley.—'Bees here are doing badly. The weather is cold, and but little honey seems to be elaborated—at any rate, they work fairly, and yet seem to do little beyond keeping just a little in hand for a rainy day. My drones came very early this year, in spite of the inclement weather; and I was able to make my artificial swarms the last week in April and the first in May. I doubt much whether I should have done so could I have foreseen the continuance of the severe weather, for they have received a check in their comb-building; and once checked, they rarely take it up again with the same energy as at first.'—J. W. B.

Macclesfield, June 7th.—'There are no signs of swarms or honey about here yet, and breeding appears to progress very slowly, owing to the cold changeable weather that prevails.'—P. P.

Droitwich.—'I have a hive of yellow bees with abnormal ones in. I could not make out what they were, but thought them of little use, as the others killed them.'

Byfleet, Surrey.—'Hope you had good fortune with your swarms. I had eight May swarms from an apiary of eleven stocks, and three since May. Not so bad after all.'

Uxbridge, June 2.—'I am only a tyro in bee-keeping as yet, but still I can see around me a vast amount of ignorance as regards the proper management of bees. Many about here still follow the "murderous" "smotheration" course. I shall try the effect of the distribution of a few of the "Leaflets," and shall perhaps try more after a while. I had a fine swarm on Monday last, and they are getting on well in a Woodbury bar-frame hive. I have only one old stock; but I hope to derive a great amount of pleasure from them as well as a little profit.'

Mount Lucas, Philipstown, May 1, 1876.—'I trust the *Journal* is a success, for truly the labourer is worthy of his hire; and also that you and your bees have got through the winter and spring in safety, for they have been of exceptional severity, and, coming after the bad honey harvest of '75, I fear there will turn out to have been a frightful destruction of bees. I have wintered ten hives in safety, though they had very little honey, and, indeed, two were transferred very late from skeps. I cannot say I took much pains with ventilation; some hives were, as it happened, well ventilated; others not; and as yet I cannot see much difference. But I *did* keep them well supplied with barley-sugar, which I find is easy to make at the price of the sugar and a little trouble; it seems somewhat better suited, too, for feeding than what I could buy, never becoming candied, but forming a liquid much like honey itself. The articles on bee flowers in the *Journal* are particularly interesting, but I have always been anxious to know from what flowers the different coloured pollens are obtained later in the season; there are crimson and dark green pollens which I never could trace to their source. It may be worth mentioning that early in spring I moved all my bees about fifty yards, and without loss. Probably the severe weather which followed helped me, as the bees did not venture out for many days after the move.'

Bedford.—'I see very forcibly how far superior a quilt is to a wooden top, and I have removed my top boards and kept only the quilt. It ventilates and keeps up a nice equal warmth.'

Queries and Replies.

> ——'Si quid novisti rectius istis,
> Candidus imperti; si non, his utere mecum.'
> HORACE.
>
> ——'And if a better system's thine
> Impart it frankly, or make use of mine.'
> FRANCIS'S TRANSLATION.

QUERY No. 154.—Do you find your Cottage Hive warm enough to stand in the open garden during the winter? If so, do you paint it, and how do you protect it?

REPLY TO QUERY 154.—Now that the quilt is recognised as necessary to health in a bee-hive, paint may be applied to its walls with impunity. Well painted and well covered with the quilt, little protection is needed, except from the sun's direct rays in summer. This we effect by throwing a sack or mat over the roof, to hang down on both sides some inches from the walls, and in winter the same is applied under the roof, and hangs down *close* to the walls. The front, in winter, is best unprotected, except from drifting snow, as every ray of sunshine should be courted to aid the temperature within.—ED.

QUERY No. 155.—On Sunday I took out the black queen of a stock of black bees. I killed her; then I immediately put in a Ligurian comb with brood in it, and a queen-cell sealed over. On Wednesday, when I opened the hive, the queen-cell was opened at the side; but I cannot find any queen in the hive, and they are building new queen-cells for themselves. Now do you suppose that they have themselves destroyed the queen-cell? and ought I to have waited a day or two? or in what respect have I done wrong? I have been transferring a stock to-day. I'm afraid the queen got killed though, because there was such a lot of honey; but they took to the new hive very well. I am very mortified to find that the frames of your new hives will not go into Walton's slinger. I think you had better send me one of your Little Wonders to try. I will exhibit it to the people at our Show, which takes place 6th July.—NEWARK.

REPLY TO QUERY No. 155.—Undoubtedly the bees destroyed the queen-cell, being in ignorance of their need of it. Sufficient time should always be allowed for bees to discover the absence of their queen before offering them aid. Twenty-four hours is usually sufficient to enable them to ascertain their loss and a queen-cell will then be accepted, no matter how inserted, so that it be not injured. There ought to be no danger of killing a queen in transferring, because she ought to be driven out with the swarm before the knife is brought into use; and if stood in the place of the stock during the operation she could take no harm.—ED.]

QUERY No. 156.—Will you kindly answer the following question? On Sunday, 12th inst., my bees swarmed a very strong swarm, which I took in a good clean seasoned hive, about 13 in. across by 10 in. in depth; in the evening I removed them to my other bees, placing the hive a little distance from the others. On Monday they seemed all right, but about the middle of the day left the hive and settled in a quince-tree near; unfortunately being an awkward place I did not succeed in getting the queen into a hive, and they went off like a cloud, and deponent saw them no more, or even heard of them. If you can give me any advice in the matter which may prevent a repetition of the calamity you will greatly oblige me. Is there anything in making a ringing noise when they swarm? I have been endeavouring, but without success, to find the origin of the practice, as

opinion seems to vary greatly. My bees work very steadily till about 1 a.m., and then seem very uneasy, the drones in large numbers buzzing about. Are they at all likely to swarm in the afternoon? Being a constant reader of your publication an answer in its columns will meet my case.—R. W.

Reply to Query No. 156.—The best advice we can offer is in future to catch the queen and clip one of her wings to prevent her flying away. Giving a comb of brood will often induce bees to stay in a hive otherwise distasteful to them. The want of shade from the direct rays of the sun is often a cause of desertion, which hint may be useful. The ringing noise is amusing to the ringer, but is of no use as a means of inducing the bees to settle. The law permits a man to follow his bees if he can, and this would afford a ready plea to a pilfering trespasser caught on others' grounds, but if a man be seen rushing through an estate making day hideous with the din of key and kettle, he is not so likely to be considered a thief, and would most probably be allowed to go on his way unmolested. Drones usually choose the middle of the day for their airing, causing a roar in the apiary which is exciting to man, if not to bees. First swarms commonly issue before two o'clock, but after-swarms come forth at any time, and in any weather.

Query No. 157.—Do you consider it a certain sign that a hive is provided with a fertile queen when the bees carry in pollen, and would they carry it in if they had no queen?

Reply to Query No. 157.—Pollen-carrying is not a certain sign that a stock possesses a queen, either fertile or otherwise, although when taken in in large quantities, it may be inferred that breeding is going on within. Fertile workers, however, sometimes cause the deceptive activity, and often the cheat is not suspected until undersized drones show themselves at the entrance of the hive. In all cases of doubt there is nothing like actual examination.—Ed.

Query No. 158.—Is it necessary—or, if not necessary, at least desirable—to wait for the appearance of drones from the hive before making an artificial swarm from it? —J. M.

Reply to Query No. 158.—It is not absolutely necessary for drones to be present in the hive from which the swarm is desired, but it is always well to be sure that drones abound in the neighbourhood. Young queens seldom mate with drones from their own hives, the powerful instinct against in-and-in breeding inducing them to choose their bridegroom from afar, the rubbish written to the contrary notwithstanding.—Ed.

Query No. 159.—Who is the author of *Practical Bee-keeping*, published at the *Exchange and Mart* Office? A re-issue has long been promised, but has not yet appeared.

Reply to Query 159.—We cannot tell, he being anonymous, and we having no knowledge of him.—Ed.

Query No. 160.—Can you inform me where, and at what price, Mr. Cheshire's apparatus for making wax-guides (as exhibited at the Crystal Palace last year) can be obtained?

Reply to Query 160.—We believe at Mr. Cheshire's own house, at Acton, W., price 2*s.* or 2*s.* 6*d.*

NOTICES TO CORRESPONDENTS & INQUIRERS.

John Maxwell.—The method of making wax-sheets was described in vol. ii. Please consult your index.

Several Correspondents.—We must beg of you to send full addresses on each occasion when a reply is expected, as it is impossible to remember them, and searching for old letters takes up much valuable time.

Marlow.—The chief reason why the stock from which the artificial swarm was taken does not work is, because all the working population has been taken away, and they have some difficulty for the few days following in providing nurses for the infant bees.

A. G. R.—It is very probable that bees brought from a distance of a quarter of a mile only to be united (in autumn) *would* return to their old stand, unless they were united very late and bad weather prevented their flying abroad. We do not think a puff or two of tobacco-smoke does harm, as it simply alarms the bees, and they fan it out in a few seconds, so perfect are their means of ventilation. It is when tobacco is used to stupefy bees, and bring them in a heap on to the floor-board, that we think its effects on the brood cannot be beneficial. In uniting two stocks we cage the queen we think most valuable, and remove the other. If allowed to 'fight it out,' probably the more nimble queen would prevail; but it might happen that the defeated one was the more valuable, but being laden with eggs, would be unable to defend herself. The latter suggestion offers a reason why fertile workers generally overcome queens that are introduced into hives containing them.

J. G. D.—We cannot name the plant; you had better send it to one of the horticultural journals. The stock, having swarmed and cast, is probably not sufficiently strong in workers to take possession of the super, or, perhaps, this being the interval between the fruit-blossoms and the clover, there is not sufficient in-gathering to enable them to do so. If you transfer now, and can fill your new hive with comb, you will still stand a chance of a super, and, at any rate, will be able to extract a large quantity of honey in the autumn if the weather continues favourable. The breeding of drones can be controlled and kept within bounds by reducing the quantity of drone-comb, and by placing the frames containing it on the outside of the brood-nest, next to the walls of the hive.

D. F. Kinnard, *Hants.*—If the wooden hive which you have placed upon the other contains bar-frames, you had better lift them out and see if the queen is upon the new comb; and if she is, and you wish to form a new colony, lift off the box, carry the lower hive to another stand, and place the wooden one in its stead. If the queen is not in the latter, proceed in the same way, and drive the bees out of the removed hive until you find her; then carry her alone to the wooden hive and put her into it. The bees on the wing will join her and form the swarm, and those left in the removed hive will raise a new queen.

Thoughtless.—The Pink wrapper signifies that the subscription is in arrear; and if you cannot find time to send it, please oblige us by ordering the *Journal* through your bookseller.

W. R.—Both the Scotch Shows are arranged to take place on the 7th, 8th, and 9th September next. We think this is a mistake.

G. H.—The Circular of the British Bee-keepers' Association will be forwarded in a few days to bee-keepers. We trust it may give an impulse to bee-keeping, and procure many new adherents to the Association.

*** We regret the postponement of several valuable contributions.

Covers for Binding the British Bee Journal, *may be had, price* 1*s. at the Office, Hanwell, W.*

OUR WANT AND SALE COLUMN.

WANTS may be advertised at 2*d.* per line of eight words, for one insertion, renewable in succeeding months, for 3 months, without alteration, for half price. Replies must contain stamped directed envelope, or they will not be forwarded.

All monies must be deposited with the Editor, who will communicate with the vendor, when, if a sale be effected, one penny in the shilling will be charged on all amounts not exceeding one pound, and one halfpenny additional will be charged on every shilling beyond that amount, and the balauce forwarded to the vendor.

Should no sale take place, the money deposited will be returned to the depositor, less a uniform charge of fourpence to cover postage.

The carriage of all articles sent, except such charges as are incurred in first placing them on a railway, must be paid for by the depositor, and if not equal to the description given, the advertiser must pay the cost of their return.

The postage of small articles, such as books, must be pre-paid by the sender. The name of the town or country in which advertisers reside, and the name of their railway, should be mentioned as a guide to probable cost of carriage.

No advertisement must contain more than sixteen words. P. O. Orders to be made payable to C. N. ABBOTT, office of *British Bee Journal*, Hanwell, W., London.

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230 One Huber Leaf Hive, good as new, 21*s.*
236 Home-made Hive, Quinby frames, two division boards, collateral principle, super cover and floor-board, 15*s.* 6*d.*
237 Walton's Extractor, in frame, &c. takes frames 13 by 18. Photo forwarded, 2*l.* 15*s.*
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261 Bee Boxes, of japanned tiu, ventilated (beeu used), for carrying fumigated or driven bees from condemned stocks. London. 2*s.* each.
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273 Bound Vol. II. *British Bee Journal*, almost new, 8*s.* 6*d.*
275 Starling's 5*l.* Honey Extractor, almost new. 4*l.*
280 One 10-bar Hive, double-walled, wide-shouldered, bottomless frames; reversible floor-board, four legs, handsome super cover and roof. Very cheap, 1*l.* 10*s.*
281 24 Vols. of 'Journal of Horticulture,' minus 9½ numbers and 4 Indices, containing the valuable Bee experiences of the late Mr. Woodbury. 1*l.* 10*s.*
282 For Sale.—A number of Straw, Super, and Stock Hives, not new but in healthy condition, also Bee-books, &c. Might exchange part for book offers. Salisbury.
284 Two Cheshire twin frame Nucleus hives, double cased and painted, not been used. Lee's make, 12*s.* 6*d.* each.
286 Three Stocks Hybrids in Woodbury hives. Near Leamington. 1*l.* 15*s.* each.
287 Excellent copy of Nutt's Collateral Hive, made by a first-class joiner. Carlisle. 1*l.*
292 'Management of Bees,' by Samuel Bagster, numerous illustrations; also, 'Practical Bee-keeping.' The two books, post-free, only 4*s.* 6*d.*
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294 Nos. 1, 2, 3, 4, 8, 10, 17, of *British Bee Journal*. 1*s.* each.
295 'The Management of Bees,' by Samuel Bagster, 2nd edition. 240 pages. 40 engravings. 5*s*
296 'The Cottager's Manual,' by Huish. 104 pages. 2*s.* 6*d.*
297 'The American Bee-keeper's Manual,' by J. B. Miner. 350 pages and 35 engravings. 5*s.* 6*d.*
298 Thorley's 'Enquiry into the Nature, Order, and Government of Bees.' 2nd edition, 1765. 158 pp. 4*s.* 6*d.*
300 'A Complete Guide to the Mystery and Management of Bees,' by Rev. William White. 1771. 94 pages. 4*s.* 6*d.*
301 Adair's 'Annals of Bee Culture,' 1870. 62 pp. 3*s.* 6*d.*
302 Adair's 'Progressive Bee Culture,' 1872. 24 pp. 2*s.*
304 A new Carr-Stewarton Hive, with 3 boxes, crown board, and floor board. Manchester. 1*l.* 15*s.*

WANT AND SALE COLUMN—CONTINUED.

No.
314 Sherrington Hive, new last year, filled with comb. Without cover. 18*s.*
315 Sherrington Honey Extractor. New, 1*l.* 5*s.*
316 Neighbour's Cottage Frame Hive. New, 5*s.*
318 *British Bee Journal*, Nos. 1, 2, 3, 4, 8, 9, 10, 12, at 1*s.* each.
326 'The Bee-keeper's Magazine.' Vol. I., Nos 1, 4, 5. Vol. II., Nos. 3, 9, 10. Vol. III., Nos. 1, 2, 7. 1*s.* each, or 9 Numbers for 6*s.*
327 'The National Bee Journal.' Vol. IV., Nos. 8, 11, 12. Vol. V., No. 1. 1*s.* each, or 4 Numbers for 3*s.*
328 'Novice's Gleanings.' Vol. I., Nos. 1, 2, 3. Three Numbers for 2*s.*
330 Swiss Bar-frame Hive. Painted, 8*s.*
331 Six Rye Straw Hives, workmanship guaranteed, cane-worked, locked stitch, turned wood feeding hole, rim top and bottom. 8½ × 16. Price 18*s.* Berks.
332 Wanted.—'Langstroth's Book on Bees.' Exchange given. Berks.
334 Dry Puff-ball, post free, per packet 1*s.*, of F. S. Clutten, Fressingfield, Suffolk.
335 'Journal of Horticulture,' in good preservation, April 2nd, 1874, to September 23rd, 1875, inclusive, 10*s.*
336 Wanted.—Nos. 5 and 6 of *British Bee Journal*, 1*s.* each offered.
338 For Sale. — A large number of frames of pure sealed honey-comb, invaluable for giving to new swarms, price 1*s.* 6*d.* per lb. Yorkshire.
339 Skeps filled with comb, dark, but healthy, 5*s.* each.
343 One Carr-Stewarton Body Box-stand, 3 octagonal supers, and wooden cover, 25*s.*
344 One Neighbour's Improved Cottage Hive, 3 glass-stands and zinc cover, used one season, 30*s.*
345 One Woodbury Hive, complete, used one season, well painted, 18*s.*
346 One Carr-Stewarton Body Box, 8*s.* 6*d.* not been used.
347 One Proctor's Patent Safety Hive, filled with healthy comb, all complete with cover and roof, 25*s.*
348 Plain Wax sheet, per lb. 4*s.* post free.
351 Two Abbott's Cottagers' Hives, filled with combs, quite healthy, 25*s.*
352 Straw Woodbury Hive, with comb and improved top, 15*s.*
367 *British Bee Journal*. Vol. I. 20*s.*
368 Apiary, complete Bee-house, with 40 wooden frame Hives, about 300 lbs. sealed Honey in frames, and about 400 frames with good comb, a closet to hang 600 frames; 30 straw and wooden Hives, with other Bee-furniture, as Hives for Queen raising, &c. Price 40*l.* complete. J. G. Kirsten, Bridlington, Yorks.
369 Vol. III. *British Bee Journal* (unbound), 6*s.*
370 'Bee-keeping,' by the *Times* Bee-master, 2*s.* 9*d.*
371 Seven zinc Bee-feeders, mahogany floats. Ireland. 1*s.* each.
372 Woodbury Bar Hive, dovetailed, 1-in. thick, 10 frames, 2 windows, with hinged covers and floor-board; also well painted cover, with porch riser for super, and ventilated top with acorn knob. Ireland. 25*s.*
373 Several stocks of English Bees, in flat-top straw hives, from 15*s.* to 21*s.* each. Quite healthy.
374 Wanted.—Stocks or swarms of English Bees. Address G. Wear, Arslaby, Whitby.
375 Finest Heather Honey, in comb or in tins. Apply to A. J. Anderson, Tullochleys Clatt, Aberdeen.

Advertiser of No. 373 must please send full address, as we cannot possibly refer to former letters to find it.

CRYSTAL PALACE SHOW.—Two First Prizes, and Two Silver Medals were awarded to C. N. ABBOTT, Editor of the *British Bee Journal*, for best BAR-FRAME HIVES in both Classes.

The Illustrated Catalogue is now ready. Please send stamped ADDRESSED envelope to Editor *British Bee Journal*, Hanwell, W., London.

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THE

British Bee Journal,

AND BEE-KEEPER'S ADVISER.

[No. 40. Vol. IV.] AUGUST, 1876. [Published Monthly.]

Editorial, Notices, &c.

AUGUST.

Quoting from our last, 'There were a few days of June weather about the 20th, which must have gladdened the hearts of those whose bees were in full force;' but what will be said of the glorious weather of nearly the whole of July, which has filled their hives with bees, their supers with honey, and their hearts with delight?

'Isn't it jolly,' said a lady bee-keeper to us when recounting her supers and her gains, 'to find, after all one's anxieties and the trouble one has taken, that everything has turned out so beautifully? I was almost in despair, but I took your advice and continued the feeding, and now I am repaid tenfold.'

Our readers will, in the foregoing, be reminded of an oft-repeated admonition to 'continue the feeding,' given by us on so many occasions. 'Continue the feeding,' said we, so as to keep the bees in good heart, that when the honey harvest arrives there may be no lack of labourers to collect it; or, supposing the harvest does not arrive, that they may be kept in good condition for going into winter quarters. To many the advice—feed, feed, feed,—was doubtless unpalatable, but taking into consideration the experience of 1875, we would ask bee-keepers generally, 'What would have been the prospect and result during this year of grace if some of the bee-keepers of Great Britain had not taken our advice? The fate of those who did not may be recorded in a few words; their bees died, or were so reduced as to be useless for profit in this year, yielding neither honey nor swarms; whereas those who listened and allowed themselves to be governed by our experience, following our advice and hoping for the best, have every reason to be thankful. They saved their bees during the past inclement year when others lost them, and in 1876, a year which will stand out in the annals of apiarians as the test-year in bee-culture, when the improved methods advanced in the *British Bee Journal* were PROVED, and the old doctrines of letting alone and trusting to chance to solve the difficulties which surround bee-keeping were scattered to the winds. Where are the stocks, the bees of the 'old fogy bee-keepers,' who have repudiated the scientific teachings of the late lamented Mr. Woodbury, and those who have followed him up to now? In the majority of instances, we are sorry to say, they *are* not; and yet the blind leaders of the blind exist, and rant, and find followers. Oh, but 1876 has been a grand year, rich in lessons, which none can afford to despise,—lessons that have been learned at a heavy cost to many, while they have richly gratified others, and, we trust, they will cause a general awakening of bee-keepers to the fact that without scientific CULTURE bee-keeping is but a delusion and a snare.

The season 1876 has been wondrously profitable to advanced apiarians, but to those who ignore science and rely on the instincts of bees amid the changes of our varying climate, the season has been 'a caution;' and, to use the pithy words of an American humorist, we in behalf of the former would say, 'This is where the laugh comes in.'

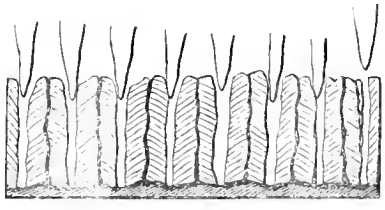
PACKING SUPERS.

The season having been so profuse in its honey-yield, supers will be plentiful, and there will, naturally, be a disposition on the part of their possessors to forward them to the local or provincial shows for exhibition or sale; but, we fear, in too many instances the good intent will be nipped in the bud by the recollection of disasters, or the rumours of them on former occasions, when honeycomb sent to shows has been returned crushed to pulp, with a large proportion of the golden or silvery nectar drained away and lost. A catastrophe of this kind is under any circumstances particularly vexatious; but when it occurs to a poor cottager who has been depending on the profits of his apiary as a means of paying his rent, or to 'square' with the miller for the keep of his pig, to pay the doctor's bill, or to defray the funeral expenses of 'the bit bairn,' whose empty chair is a constant remembrancer, the loss becomes a calamity. And because we know these things have occurred, we offer a few suggestions on

the subject, gathered from the splendid success of the celebrated Scotch (Ayrshire) apiarians, whose magnificent exhibits at the great Crystal Palace Show in 1874 contributed so largely to its renown. These clever bee-masters brought over half a ton of the most delicate honeycomb over four hundred miles of railways, and exhibited the whole of it on the occasion mentioned without a broken cell, while many whose exhibits had not fifty miles to travel were unable to place them on the table, through the combs having broken down and the honey having escaped, they being reduced in fact to pulp.

Where supers have not been furnished with bottom-boards of their own, to which the lower edges of the combs could be attached, they will, when completed and removed, be exceedingly liable to damage, for the combs being unsupported below, will be liable to fall out with a very slight jolt, and one comb having dropped would lean against another and break it, and so in rotation the whole might come to grief. To prevent the *falling*, it is customary to turn the supers upside down, so that the combs shall rest upon the crown-boards to which they are built, which will give them the most solid bearing. There is, then, only the danger of their falling sideways to provide against, and in this our Ayrshire friends have taught us a most useful lesson. It is a well-established fact that honeycomb, whether in supers or in the stock hive, is built with firm attachments to the top, and as far down to the sides of the hive or frame as the comb is filled and sealed over; and in frames and supers more especially the bees build them down to the base, firmly attaching them to the bottom rail of the former, or to the adapting-board of the latter; and it is because of the firmness and solidity of supers so filled when removed intact, that we have always recommended that they should be furnished with bottom-boards of their own, so that when removed from the hive there should be no broken cells or bleeding honey, and that when sent to market, or for exhibition, the combs would be less liable to damage. In this, however, it is not yet the fashion to follow us, but following old custom, even the Ayrshire men prefer the plan which compels them to sever their supers from their stock hives by passing a wire between them, which, as will be readily understood, cuts or tears apart the lowermost cells, and causes some of the honey to flow, which the bees immediately lick up and re-deposit elsewhere. But as this method removes all impediment to a full view of the combs as they lie, as it were, in a nest, there is, perhaps, sufficient warrant for the proceeding.

The engraving gives a sectional view of an Ayrshire super inverted; and to prevent the combs falling sideways, the bee-keepers take as many sheets of clean white note-paper as may be required, and press them, folded as they are, back downward, between each pair of combs and between the outer ones and the hive, until the whole extent of comb-surface is lined, as it were, with paper which will not soil it. Other paper of soft texture is then folded four, five, or six folds in thickness, as may be necessary, and these are pressed down with wide cards into the interstices of the combs, between the



folds of writing-paper, until they are moderately firm and afford good support to the combs; and to tighten the whole, additional cards are pressed down by the side of, or between others, until all is fairly solid. Thus packed the combs can receive no hurt except from actual smashing, which cannot occur in fair usage; but it is well to lay them on a bed of soft material—hay, shavings, chaff, or blankets—to prevent a too sudden jar on a railway or other carriage, or by being let fall with a thud (and without a blessing) from the hands of a railway porter. The mode of packing above described is suitable for supers of any shape, and is equally applicable to those containing frames and to those whose adapting (or bottom) boards will permit of it through the openings. *En route* it will always be better to send supers in separate parcels; bell-glasses will travel well if packed inverted in old flat-topped skeps; supers in general will do well in American cheese-boxes, with hay beneath them, or in any light boxes; but in all cases handles should be formed of rope or other material which will allow the railway people to lift them easily; and if means be adopted to ensure them being set down gently, all will be well.

In a former volume we gave a hint that india-rubber balls enclosed on canvas and nailed on to the underside of boxes containing supers would ease the jolts on a journey, but as a rule the balls are stolen from their canvas envelope, so that the plan is rendered useless. With small sectional supers, such as we recommend, and in which the bees *ought* to build correctly, where practicable a fold of wadding in silver paper, and a thin board, placed on each side of the comb, and fastened with a couple of elastic bands, will be ample protection. But, as we have often before remarked, bees sometimes find it easier to elongate existing cells than to start new ones; and although they may begin

correctly on the wax side, and keep the mid rib of the comb central, they cannot always be relied on to build (as theoretically they *always do*) fairly within the sections, in which case the bee-keeper must devise a means of widening the sections on the side on which the comb protrudes prior to covering them with the wadding, &c. At the Floral Exhibition at Heston, Middlesex, a few days since, a super was exhibited by Mr. Ellingham, the cells of which were on one side of the mid rib or foundation, not more than an inch long, while on the other they were extended to a length (or depth) of nearly four inches.

VENTILATING HIVES AND SUPERS.

During hot weather it often occurs that hives and supers become dangerously hot—so much so, indeed, that the bees are afraid to continue their labours, and consequently they hang in large bunches outside the hives, while honey is wasting in the fields and gardens; and their owner is looking with astonishment at 'the vagaries of bees,' his, in his opinion, having suddenly become idle. The reason for this is as above stated, and the remedy is simple. If in a straw skep, the entrance must be enlarged by exchanging the floor-board for one with a wider gateway, or more of the straw-work must be cut away either to widen the present entrance, or to make one or more others. In bar-frame hives the common plan is to prop up the front of the hive on a couple of pieces of tile or something of the kind; but that makes an acute angle at the back of the hive-sides which occupies the bees for a considerable time in propolising; and, therefore, we recommend that wedges be used of the same length as the

hive-sides, about $\frac{3}{8}$-inch thick at one end and without thickness at the other, which should be placed under the hive-sides so as to raise its front, but prevent any other vacancy.

It will be found much better to ventilate at the bottom of the hive during the brooding and storing season than at any other part; but when the harvest is waning the entrances should be gradually reduced, and, when over, contracted to about half their usual size, to prevent temptation to robbing.

HANWELL PARISH BEES.

We have never hitherto reported the progress made by the swarm of bees set apart, in 1874, for the benefit of the poor of our Parish, but think it right that such report should be made.

The swarm, then, be it observed, was a natural one, of pure Ligurians, and having been hived in a Cottage Woodbury hive, was placed (by permission) in the front garden of Mr. H. Carter, Vestry Clerk of Hanwell, where it has been a subject of much interest to the inhabitants. In 1874 it did no more than make itself safe for the winter (with a little assistance); but in the spring of 1875 it sent forth a swarm, which was sold for two guineas, from which seven shillings were deducted for expenses, and thirty-five shillings were handed over to the Rev. J. Jerome Mercier, late Curate of Hanwell, to be expended at his discretion. This year it has sent forth a swarm (hybrids) and a cast, which latter was returned, and the bees are now at work in a Woodbury super, so there is a good prospect of a fair dividend this season.

We would earnestly recommend that every extensive bee-keeper should devote one swarm, just once in his lifetime, to charitable purposes, and that he should try his utmost to make it pay. His poor neighbours would soon learn to take an interest in the wealth-producers, and the rich, seeing by the balance-sheet that profit can be made out of them, will be sure to help the cottagers to possess them. A swarm of bees is not thought a great deal of at swarming-time, and the giving it will cost but little effort, but who shall tell the good that may be be done by the profit arising from it and the example? We once suggested that such stocks would offer fair tests of the relative value of English and Ligurian bees. Let the votaries of each variety devote just one hive to charity, and let the annual '*dividend*' prove their value respectively.

DR. PINE'S BEE-KEEPERS' LOTION.

In the May number of *Journal*, page 7, we mentioned the above 'Remedy for Bee-stings,' but could give no account of it, as we were unable to try it at the time. A case has, however, come under our immediate notice, which we think it right to report for others' benefit and guidance. On a Sunday afternoon, a short time since, a boy of about seven years of age was amusing himself with a little wooden spade, 'shovelling' the outlying bees of our parish stock into the hive, and it was no surprise to us to hear that he had received no less than seven stings in his face and forehead. His screams soon brought him aid; and, thinking it a good opportunity, we gave his friends some of the lotion to try, and the result was most satisfactory, for by keeping the wounds dabbed with it, in less than an hour the pain had

ceased, and there was no sign of swelling or inflammation. We give this for what it is worth; others may not have had similar experience, but it is singular we have had no report from any one as to its usefulness or otherwise. The proprietor, in an advertisement he is sending out, requests that purchasers will send their experiences of it to us for publication; and if any do so, we hope they will 'nothing extenuate, nor aught set down in malice,' and to remember that it is supposed to be applied immediately on receiving the sting.

BEE-KEEPING FOR THE MILLION.

Our Crystal Palace Leaflets are, we are assured, doing great good amongst bee-keepers of all classes, for as a means of conveying instruction on any branch of bee-culture on which they treat, they are unequalled.

At present the list comprises, No. 1, Transferring; No. 2, Feeding; No. 3, Ligurianizing; No. 4, Driving; No. 5, Hiving in Bar Frame Hives; and No. 6, Artificial Swarming. These we have been 'giving away' at 6*d.* per dozen, and many thousands have already been disposed of. But to enable the numerous Associations of Bee-keepers, and others so minded, to scatter the information they contain broadcast amongst amateurs and cottagers as cheaply as possible, we offer them in future at the rate of TWENTY-FIVE SHILLINGS PER THOUSAND, free on the railway, but we cannot send out less than a hundred of each, or either, at so low a price. The list, we need hardly say, will be increased, as we can spare time to arrange the subjects. Per dozen the prize will remain at sixpence, postage free.

APIARIAN EXHIBITIONS.

Exhibitions of bees and their produce took place simultaneously, on July 25th last, at Dawlish and Wrexham, at the former of which we lent a helping hand, and to the latter sent a few appliances to interest the visitors. The next on the list will take place at Weston-super-Mare, on the occasion of the Annual Flower Show, on Tuesday and Wednesday, August 15th and 16th, where prizes are offered to an extent which ought to tempt many exhibitors. On Wednesday, August 30th, a Bee and Honey Show will take place at Sherborne, Dorsetshire, in connexion with the Sherborne Horticultural Society's Show, when an exhibition of manipulation with live bees will take place under *our* supervision. The Hon. Sec., Mr. Charles Tite, of Wyndham Street, Yeovil, hopes that hive-makers will send specimens of their wares, which will, of course, be sold if possible, and offers to give all necessary information by letter if applied for.

On Thursday, August 31st, there will be an Exhibition of Bees and Honey at Moreton-on-the-Marsh, at which also manipulation with live bees will take place under our management, if possible; but if not, our junior will attend. Further information may be obtained of the Rev. J. H. Clarke, the Hon. Sec. and Treasurer, who will be glad to give any information to intending exhibitors.

At Wolverhampton the Staffordshire Bee-keepers' Association will hold an Exhibition about the end of August or beginning of September, at which we have also promised to be present, either by self or junior, the Rev. W. J. Frere, of St. Mary's Vicarage, Wolverhampton, being the Hon. Sec., from whom information may be obtained. Closely following are the two great Scotch Shows, whose advertisements in June *Journal* gave fullest particulars. And then comes the third Annual Show of the British Bee-keepers' Association at the Alexandra Palace, when we hope to see all our old friends, and many new ones. In the meantime there will be a Bee and Honey Show at Grantham, under the able supervision of R. R. Godfrey, Esq., of Watergate in that town, the 'pioneer' who levelled all obstacles, and cleared the way for the first exhibition of the kind ever held in this country; and we sincerely hope that, with such a bill of fare before them, the bee-keepers of Great Britain will feel that their 'pleasant hobby' is becoming more and more popular, and that they will, by every means in their power, aid the Associations to extend their operations and influence until every cottager in the land shall possess 'a self-filling money-box.'

BEE MANIPULATION AT THE DAWLISH FLOWER SHOW.

A series of operations with bees took place on Tuesday, July 25, in connexion with the Dawlish Horticultural and Cottage-garden Society's Annual Show, in the lovely grounds of Luscombe Park, by the kind permission of C. E. Fletcher, Esq., who, indeed, took a most active part in the manipulation. We had the honour of assisting on the occasion, and, but for the extreme heat of the weather, should have been enabled to record a complete success. Six stocks of bees were brought into the arena, but unfortunately two of them had their combs broken down, and the honey running about made the place lively with robbing bees from outside. The usual operations—driving, transferring, extracting, finding queens, and explaining the various phenomena of the hive—caused unabated interest amongst the large number of visitors, not a little astonishment being expressed at the bees not resenting the liberties taken with them.

At the Honey Show we had the honour of awarding the prizes, giving the first to W. N. Griffin, Esq., of Alphington, for two well-filled Sadler's supers; the second to C. E. Fletcher, Esq., for a beautiful square super of 19½ lbs.; and the third to Capt. Lampen for a similar one of larger size, well filled out, but containing brood.

Mr. J. Burch, a cottager, was awarded second prize for a large fish-globe super, partly filled, but containing much brood and lots of bees. It was somewhat singular that in this department, owing to the bees getting out of the supers, one or two stings were received; but in or about the tent, where thousands of bees were flying, there was not one cause of complaint. The excessive heat taught us a lesson in the erection of tents, &c., for such exhibitions, which we hope to explain in our next; in the meantime those contemplating bee-manipulation at shows would do well to communicate at once.

A VETERAN BEEKEEPER.

In the early years of the present century Miss Stirling Graham of Duntrune, near Dundee, was one of the stars of Edinburgh literary circles. Her clever book, entitled *Mystifications*, relates some curious incidents of her experience at that time. In 1829 she published an excellent translation of De Gelieu's book, the *Bee Preserver*, a second edition of which she published lately when in her ninety-fourth year. She has had her bees for more than half-a-century, and is as enthusiastic over them as ever. A few weeks ago she had them for the first time *artificially* swarmed, and shortly after got the bees and combs of a skep transferred to her first bar-frame hive. She insisted on sitting quite close to the operators during both processes, and expressed great pleasure in witnessing the novel and successful spectacle, to which she had invited a number of friends and neighbours. Miss Graham is now in her ninety-fifth year, and is still in excellent health and spirits She is, we believe, the last representative of the historical Graham of Claverhouse, Viscount Dundee.

BEE-STINGS AND THEIR REMEDIES.

Frequently the effect of the sting in persons who are susceptible, and with tender skins, is felt for many days, often even a week; and if the swollen part is irritated or rubbed at the end of that period the pain is again slightly felt. But it may be a slight satisfaction to such persons to know that the effect of the venom is not so violent in after years; certainly the sickly sensation, accompanied with the smarting pain, is not regarded with so much horror after being stung several times. Much also depends upon the state of the body at the time. If the skin is in a state of perspiration, or the body at a high temperature, and even when the person is slightly ailing with any disease, the effects are much more violent. The recorded instances are rare where it has been known to cause death. When stung, the first thing to be attended to is the removal of the sting from the flesh, for, if left to itself, it sinks deeper and deeper, all the time injecting more and more of the venom; but if the sting is immediately removed, very little of the venom can have been injected beneath the skin. The next thing to be attended to after removing the sting is not to rub or irritate the part. If it is violently rubbed it puts the blood in active circulation, and so the poison taken up in the circulation is rapidly disseminated. One of the remedies is to apply damp soil (earth) to the wound. This is said to act like a charm, and to take away immediately the pain and inflammation. The real fact is, that anything cold applied has a soothing influence for a limited period, such as cold water. This is strongly recommended by many bee-keepers. The venom being of a strong acid nature, any alkali which will counteract it is useful as a remedy. On this, and certainly scientific grounds, many persons apply liquid-ammonia, sometimes called hartshorn, but it should be applied with care. The same remarks may be used in reference to liquor potassæ, which is also employed with beneficial results. Plantain-leaves (waybread of Cheshire and Lancashire villagers) bruised and pressed on the wound, are a reputed specific. The juice of the poppy allays the pain; this acts solely as a sedative. Laudanum prepared from poppies will act much more speedily; still, the swelling or inflammation will not be arrested, with its after effects. Mr. Wagner, a German apiarian, states that he always applies the juice from ripe honeysuckle berries, and has never known it to fail as a remedy. Some persons when stung faint and lose all self-command; in such cases it is well to have at hand, where it can be used without loss of time, a small quantity of sal volatile, of which a teaspoonful should be taken internally in a tablespoonful of cold water; this will speedily remove the faintness.—*Gardener's Chronicle.*

PROLIFIC STOCKS.

Mr. G. F. Munford, of South Street, Crewkerne, Somerset, had during June three swarms from one hive in ten days.

Mr. Willey, of Bardness, near Lincoln, has a stock, from which he has had six swarms as follows: Four from the old stock, and a swarm and cast from the first swarm that issued. Mr. T. Sleight, of the same place, has had three good swarms from one stock.

THE HEN AND THE HONEY BEE.

A lazy Hen—the story goes—
Loquacious, pert, and self-conceited,
Espied a Bee upon a rose,
And thus the busy insect greeted :—

'Say, what's the use of such as you,
(Excuse the freedom of a neighbour!)
Who gad about, and never do
A single act of useful labour?

'I marked you well for many a day
In garden blooms and meadow clover;
Now here, now there, in wanton play;
From morn till night an idle rover.

'While I discreetly bide at home;
A faithful wife—the best of mothers;
About the fields you idly roam,
Without the least regard for others.'

'Nay,' said the Bee, 'you do me wrong;
I'm useful, too; perhaps you doubt it,
Because, though toiling all day long,
I scorn to make a fuss about it!

'While you, with every egg that cheers
Your daily task, must stop and hammer
The news in other people's ears,
Till they are deafened with the clamour.

'Come now with me, and see my hive,
And note how folks may work in quiet,
To useful arts much more alive
Than you with all your cackling riot.'

From the German of Gellett, *by* J. G. Saxe.

Correspondence.

*** These columns are open to Subscribers, so that their queries, replies, correspondence, and experiences, may be fully and faithfully recorded; and for the discussion of all theories and systems in Bee-culture, and of the relative merits of all hives and appurtenances, that the truth regarding them may be ascertained. The Editor, therefore, must not be expected to coincide with all the views expressed by the various writers. All Correspondence is addressed to the Editor.*

PROPOSED BEE SHOW AT WOLVERHAMPTON.

I am sorry that I have not sooner written to you about the proposed Wolverhampton and Staffordshire Bee Association, according to promise. A meeting was held early in June, and draft rules and constitution drawn up, and since that time I have been in communication with those bee-keepers in the district whose names and addresses I could discover. I shall be glad to forward a copy of the rules to any who have not already received them, but I will not ask you to print them till I see there is a good chance of the Association being firmly established. If all goes well, *i.e.* if money is forthcoming for a Prize Fund, we can have a tent at the Wolverhampton Cottagers' Flower Show in August.—William J. Frere, *Hon. Sec., pro tem., St. Mary's Vicarage, Wolverhampton.*

ASSOCIATION FOR STAFFORDSHIRE AND DISTRICT.

A few gentlemen interested in apiculture have been endeavouring to set on foot a Wolverhampton and Staffordshire Bee Association, which will include, at least for the present, the neighbouring counties. I shall be glad to forward Rules, and (as soon as possible) a Schedule of the Prizes, which we hope to offer at a Show towards the end of August or the beginning of September. Those who have already taken up the matter will be pleased to hear that you have promised to be present if our day suits your convenience. Mr. G. Lewis, Queen Street, Wolverhampton, will be glad to receive subscriptions (2*s.* 6*d.* for cottagers and artisans, 5*s.* for others) and donations to the Prize Fund.—William J. Frere, *Hon. Sec., pro tem., St. Mary's Vicarage, Wolverhampton.*

DECOY HIVES.

A May swarm, after being hived, left in the course of an hour, and took possession of an empty hive belonging to a neighbour; and although the bees were followed, and seen to go into his hive, he refuses to give them up; I have in consequence placed the matter in the hands of a solicitor, and summoned him for their value. It was a strong swarm, and I understand they have swarmed again since they have been in his possession. The case comes on on the 19th of this month, and I intend taking some of each kind of bees as witnesses; fortunately for me nobody has any Ligurians within a distance of four miles, and all the bees belonging to the man died during the winter.—F. B., *The Grove, Shifnal, July 11th*, 1876.

Can any one give me any information bearing upon the following question,—Is it legal for a person to keep hives with comb within them, devoid of bees, and with their entrances persistently open, so as to be a decoy for any swarms in their vicinity? The question arises owing to a possessor of bees, not over-gifted with the virtue of industry, regularly keeping, year by year, several of these open and empty hives. Two months ago I heard him say that last year he had nineteen full hives, but this spring all were dead but five.

Towards the end of May of this current year, during my absence from home, I had a swarm of Italian bees, which were hived by my gardener in a straw skep, and upon my return at night were transferred to a bar-frame hive. The next morning, being Sunday, they were found to be still in the hive, where they were intended to remain until evening, and to be then removed to their permanent position in the bee-house; but shortly after returning from church it was found that they had quitted the hive, and were clustered in an elder-bush about 100 yards from the empty hives complained of, and in a direct line between them and the stock from which they had primarily issued. The worthy owner of these empty bee-traps was present at the spot where they had rested, said that he was expecting a swarm, and claimed them as his own. After raising a ladder, so as to examine the bees closely, I pronounced them to be Italians; and as the hive in which my swarm had been placed was then empty, and no other person in the district kept Italians, I declared that they were my own. This he disputed, saying that if those were Italian bees, his were also, for they were both alike. I then proceeded to secure them, and he, seeing me satisfied that they were my own, and determined to hive them, became very free in communicating advice upon bee-culture, giving an account of his recognising one of his 'own' truant 'swarms' settled on a church in the town of Derby, $2\frac{3}{4}$ miles distant as the crow flies.

The following case I took down from the lips of a neighbour, and a sufferer from these decoys. In 1874 he had a May swarm, which settled on his own premises; he hived it, shaded it from the sun, and it stayed for $1\frac{1}{2}$ or 2 hours, but never attempted to work; then left and set off for these vagabond hives, 60 or 70 yards distant. The swarm was followed by the owner, who reached our virtuous *Trappist* almost before his own bees, and claimed them. Both parties saw this swarm enter one of these vacant hives. As usual, he ventured to suggest that the swarm was his own; but the true proprietor being resolute and corroborated, he gave way, and accepted two shillings as payment for the old hive, which in the evening was removed. Not an ounce of honey was ever obtained from this hive and swarm, and it died in March 1876. The hive was swarming with wax-moth and its larvæ, and to prevent it spreading to others was burned.

In the spring of 1876 this same owner lost

another swarm, but cannot speak positively to its having gone 'across the road,' but he believes that it did.

These cases induce one to offer a few remarks upon a paragraph on 'Lost Swarms,' over the signature 'B. & W.', which appeared in the *Journal of Horticulture* under date of June 22, 1876. Letting alone the morality and honesty of the practice advocated in that letter, I would just draw attention to the remark at its commencement, namely, 'that it is next to impossible to keep them' (hives with comb, but without bees) 'free from the wax-moth, unless such hives be all but hermetically sealed' up; yet, in the very next sentence, it *is* advised to keep them open; and if that is done for sufficient time the wax-moth gets established, and an early prime swarm—as in the case above cited—becomes a prey to the practice here inculcated, with the risk of contaminating a whole apiary. But, again, is it right, merely for the purpose of acquiring possession of an unowned swarm, to counsel such proceedings, which are an intolerable nuisance and wrong to immediate neighbours, as the cases quoted plainly indicate?

The argument of 'B. & W.', drawn from implied negligence on the part of the owner in watching for and '*hiving*' his swarms, falls to the ground in face of the two cases I mention, where, after being hived, the bees left for these furnished decoy-traps. Moreover, one of them actually confesses to having bought his own 'Italianised bees,' which must have escaped from his own apiary. Why did not he who deprecates negligence, carelessness, and want of vigilance on the part of others, practise himself those qualities which he is so anxious that others should suffer from by not regarding?

Numerous cases will occur to your readers in which the cottager, labourer, &c., up to the bee-master among the higher ranks, may be absolutely unable to be *always* on the watch for his bees swarming, but an enumeration of such cases would occupy far too much space in your *Journal*.—I. T. B.

I am obliged again to commence bee-keeping, for on the 15th inst. a strong swarm of bees came and took possession of a bar-frame hive I had left with some comb in it. They seem to work with a right good will, so I hope they will be able to furnish themselves with sufficient for their well-being through the winter.

The bees appear to be making up for the losses of the two previous seasons. A friend of mine in the country has had ten swarms from three stocks; he has been a bee-keeper nearly ten years; has never had a change of bees during that time, and his bees have not deteriorated in the least from *in-and-in breeding*; most, if not all, the bees in his locality have been from his stock.—J. R., *Market Rasen, July 19th*, 1876.

WHAT IS THE LAW ON BEES?

Upon Saturday, the 15th inst., a prime, *i. e.* a first swarm issued from a hive of mine in the morning, and was hived, but left and flew away in the afternoon; they were, however, followed, and went straight to the roof of a house, and got in below the slates and skirting. The place is above a window, and the space to which they will have access will be about room, or holding capacity of two flour-barrels barely. The tenant will not allow me to lift a slate nor piece of skirting, nor lead, nor in any way interfere with the roof, although I understood that I would be allowed, and was waiting for a joiner whom I had engaged, or I would have written you sooner. The principal entrance they have is a hole into which I can almost force my hand. What can I do, or what should I do? The weather has been good, and they will now have plenty of comb. I hope the second swarm will not follow.—JOHN MAXWELL, 285 *Govan Road, Govan, July 19th*, 1876.

[We would recommend you to consult a solicitor on the point. We have always believed that bee-owners have a right to follow and repossess themselves of their swarms, paying for any damage they may cause in doing so. If the house-holder denies you the right, bring an action against him for the value of the swarm, and try the question.—ED.]

BEES IN ABERDEENSHIRE.

As a reader of the *Journal* in the far north, I must let you know what my bees are doing. I took my first swarm on the 31st of May and placed it in a Cottage Woodbury hive; when filled I placed over it a second hive, the same as the first, and when it was also filled a Crystal Palace super, which will soon be full too. My non-swarmers are all at work in their second super. A natural swarm, which came off July 4th, had a super put on it on the 11th, and a second yesterday; and if they go on as they are doing, will want another very soon. I use the Cottage Woodbury hive, and the Crystal Palace super, made from the patterns you sent me last year. I have now ten hives, and find them very convenient. I have adopted a very simple and quick plan of hiving swarms by having a box made about 6 in. deep, and a good rim round the top, fitted so as to take the place of the floor-board. The bees are thrown into this box out of a zinc pail, the box slid under the hive, and the thing is done.—G. H. P. *July 19th*, 1876.

BEES IN ARBROATH, FORFARSHIRE.

We have splendid honey-producing weather just now, and the bees are doing wonders, and our Show at Dundee is certain to be a grand success. Being in connexion with such a grand floral exhibition as the International, and with such propitious weather as we have at present, there will be a magnificent display, which will give the East of Scotland Bee-keepers' Society a standing in the apiarian world, and make the British Bee-keepers' Association tremble for its laurels.—J. S., *Arbroath, N.B., 17th July*, 1876.

'FLOWING WITH HONEY.'

Heigho! for bee-keepers in this year of human redemption—as the almanac-maker hath it—anno Domini 1876. May the memory of '76 be treasured by those happy beings whose supreme delight is in the flowery annals of apiculture! Honey! honey every-

where ; from my particular friends the whitethorns* in spring, to the acres of white clover now in bloom ! A real Elysium to busy bees and fat slothful southdowns ! What is more delicious than the soft fragrance of a field of white clover, resonant all the live-long summer day with the merry music of industrious bees ! Of a truth ye are to be pitied who are doomed to dwell in yonder metropolis ; your daily range of vision limited to sweltering avenues of stuccoed bricks and mortar, surmounted by groves of sad-coloured chimney-pots in bold relief, looking grimly down on the ceaseless torrent of turmoil and confusion rolling beneath ; say what know ye of the 'pure and simple' pleasures of life in the beautiful country ?

But *revenons*, etc., I am straying from the subject, as is usually the case when I give free rein to my erring pen : I must use the curb, else the editorial baton will be brought prominently into play !

Notwithstanding the cold ungenial spring and the backwardness of vegetation generally, my bees have gathered an unusually large quantity of honey this season. The low night temperature prevailing through May kept them at least a fortnight in check, nor did they commence work in real earnest in the supers until the first week in June. Since then the state of progress has been rapid indeed. It is really marvellous how fast bees will store honey under favourable circumstances. In three weeks afterwards the heaviest super (furnished with two empty drone combs to begin with) weighed 80 lbs., another 65, the others ranging from 39 to 53 lbs. The honey from the former was then extracted, and the large super replaced, but in two days afterwards the hive swarmed. My intention was to return them, but the swarm was a tremendous affair—one of the largest I have ever seen, more than a hive full, and my hives are not small—and so I made a separate stock of them, otherwise it would have been a new edition of Pelion on Ossa, hive on hive, and another on top !

In the aggregate the produce of pure honey-comb in my apiary is as near a quarter of a ton as can be —the supers are not yet all removed. They were all examined and weighed a few days since, and some were replaced where the combs were not quite sealed over. Does not this rich harvest I would ask, *en passant*, afford substantial proof of the profits of an apiary to those who are somewhat sceptical on the subject ? From my own experience I aver that few pursuits yield so large a return on the capital invested, or afford such a continuous fund of unfailing interest and instruction.

Towards the close of last season I remember seeing an article in a leading high-priced paper devoted in some part to rural pursuits, wherein the writer declared his belief that a yield of 30 lbs. of honey per stock is 'all nonsense,' and followed up with numerous explanations, *simplex munditiis*. In the end, however, he just and barely admitted it to be within the bounds of possibility,—'Provided the district be exceptionally favourable, provided the queen be young, and the population large, and provided'—but why add more ? *satis superque*. The saving clauses forcibly remind one of that pedantic divine, the Rev. Micah Blattergowl, when, in the fulness of his heart, he drank to Miss Griselda Oldenbuck's inclinations, 'provided always, my dear madam, they be virtuous.' I presume that had that enlightened writer chanced to have heard of the splendid harvest of honey obtained in '74 from twelve stocks by a gentleman not quite one hundred miles from a central town in this county, he would, like Dominie Sampson, of happy memory, have thrown up his arms, and ejaculated 'Prodigious !'

I noticed in a late number of the *Journal*, one of ours constructed a tank to supply his apiary with water, and it was much resorted to by demoralised bees bent on——suicide ! Now, a reservoir of water in the immediate vicinity of hives is, I aver, absolutely indispensable where no pond or brook is handy. In my garden I have a large earthen crock, sunk on a level with the ground, filled every morning with pump water for the flowers in the greenhouse, and cucumbers, &c., in the evening. All the day bees flock to it and drink, standing on thin slips of wood floating on the surface. A few days since, during a shower, I counted nearly 600 bees drinking ; on a fine sunny day there are are rarely at any time more than say 50 present, but on a rainy day, curiously enough, the number increases tenfold.—ALFRED RUSBRIDGE, *Hive Manufactory, Sidlesham, Chichester.*

* Farther north these yield, I believe, but little honey; down here in the sunny south they furnish ample pasturage for bees when in full bloom.

THE SEASON.

The year 1876 has without doubt been the most untoward season for bees in the remembrance of man, if we except the month of July, which has quite turned the tables in favour of bees, and has perhaps yielded the most abundant harvest in the annals of bee-keeping. Before describing the prospects of the season, it may not be out of place to make a few remarks on the season, &c. The weather was most unpropitious for nearly three months previous to that date, and the bees were confined in their hives during nearly all the time, up to the 18th day of June, when bee-keepers were so much surprised at the eccentricities of their bees. On that fine morning swarms issued between the hours of six and seven o'clock, the air was filled with the sonorous sound of the drone; and I have good reason to believe that a queen a month old, and which had commenced to lay eggs, was impregnated on that occasion ; but, mark you, although she had become a parent in one sense, she had not yet been prepared to fulfil the duties of a royal mother, and, although well matured in days, and still unwed, that beautiful morning of the 18th induced her to wander in search of a mate, and so fulfil her destiny ; and she has since proven herself a prolific queen.

The queen above referred to, although a month old, had never before had an opportunity of flying more than a few minutes at a time, she had commenced laying eggs when about twenty-one days old, but which produced drones only, and mated with the drone six or seven days after she had commenced laying. Is it not possible that with favourable weather a queen may be fertilised even though

she was months old? There is one thing I have never heard explained, that is, the size of drones that queens and fertile workers produce. What I have experienced is, that virgin queens lay eggs mostly in worker cells which produce small drones, aged or effete queens lay only in drone-cells, producing large sized drones, whereas fertile workers lay both in drone and worker cells, producing large and small drones, all which however are capable of being fathers.* There is another question I would like to put to your readers, that is, have bees the power or instinct of knowing what kind of weather is likely to be in the future: we all know that bees cease to work before rain, even although the weather is fine? Now in 1874 and 1875 I observed that the bees killed their drones and hauled out their young some days before the weather broke; but in this year, 1876, notwithstanding the very untoward weather, I neither saw drones nor brood cleared out, although in many instances the bees themselves were starving and dying. I noticed this as very remarkable at the time, and wondered if good weather was in store for them and us; and if they knew what was coming, for come it has, but almost wholly in July, because although the 18th June ushered in the change, on the 19th a perfect hurricane occurred, and some three days in that month were all the good days they had, but strong hives improved their time. On the 22nd, supers were put on, but no work was done in them until the 13th July, and now the 20th what a change! My best hive has 70 lbs. supers nearly finished, and according to measure it will weigh 170 or 180 lbs.; swarm hives from 24 to 30 lbs. supers nearly finished; and on six hives I will have about or upwards of 300 lbs. of supers; two different hives that I gave supers, that hold 28 lbs., on the 14th are nearly finished, all Ligurians; and as this locality is only a middling one, I expect to hear from Ayrshire of far greater results. I was reading lately in the *Journal of Horticulture* an article by A. Pettigrew describing how to get supers of honey, by cutting up the stock hives and fitting the comb into boxes for the bees to finish, thereby causing much extra work and loss to the bees and bee-master. I thought at the time I read it, it was barbarous treatment, and could only belong to the dark ages. I wondered if Mr. Pettigrew had ever seen the *British Bee Journal*. I think, Mr. Editor, you should really send him a copy, and show to him that bees can be induced to work in supers to far greater advantage, than by making the bees work it twice over. I think Mr. Pettigrew is such an enthusiast that he would only be too glad to adopt the system if he only knew it could be done, and how to do it.—A Lanarkshire Bee-keeper.

OVERLADEN SKEPS.

Would it not be well to insert in the next *Journal* a few lines of advice as to the treatment of skeps in the present glut of honey? Many must be, I am sure, so crammed as to leave the queen no room for laying, and if something is not done some bee-keepers will be astonished to find how weak their stocks are next spring. For example—though it is one which exposes my own folly—I lifted up yesterday a cast, which, in my absence from home, had been hived in a straw skep nine days previously. Five out of the seven combs came out, and every cell in every comb (for I had to remove all) had honey in it, except the few which were stored with pollen. What would the queen have done when she wanted to lay? I suspect that a great many old stocks would be found in a like predicament if they could be examined. How would it answer to remove a comb or two if possible?—W. J. F.

[This is one of the best arguments against the use of the skep. Mr. Pettigrew would say take the honey from such stocks and let the bees start afresh, but then his method involves the loss of the brood, pollen, and combs. Our Leaflet on Transferring gives useful information on the subject. Cutting out honeycomb would ensure the building of drone-comb in its place.—Ed.]

A LADY BEE-KEEPER'S DIFFICULTIES.

I eagerly searched the *Bee Journal* for this month, hoping to find in it some directions for swarming; but I see they will be given next month—too late, I fear, for me to profit from it. My bees have been such a trouble to me for the last three weeks—hanging out in bunches sometimes as big as a man's head, and threatening to swarm, but never doing so. As I have hitherto had nothing but loss with them, I was wishful to keep the swarm, and have never ventured far from home, and made hundreds of fruitless journeys to the hive (an old straw one), to see how they were going on. I begin to fear now the poor things have no queen to swarm with, and yet young bees keep coming from the hive. I have one of your new hives to put the swarm into as soon as it will leave the parent hive.

It is really too provoking to be left in suspense like this from day to day, and one question I should like answering, either in your next issue or by letter, if you have time, is,—Can a swarm such as I have been describing, which seems to want some impetus to make it leave the hive, be induced to do so by any known means? Imitating the sound of the queen, for instance, or causing a panic by knocking the hive, gently syringing with water, or any other method?

I am amused at the free-and-easy way in which your correspondents talk of transferring their bees from one hive to another, and doing such wonderful things with them, as if they had no stings and were harmless flies. I have a great horror of meddling with them, though I should much like to know how to do so, as I generally have to pay pretty handsomely for a swarm being taken, or any other help. I should be so glad if you would tell me how I can transfer the bees out of my present old straw skep (when they have swarmed) into a wooden box-hive I had sent from Germany on the Giotto system. Is there not a danger, in shaking them in over the frames, of the bees getting injured? Many of my bees seem to have their wings knocked about rather, and vandyked at the edges: is that from earwigs in

* This assertion is denied by Continental bee-keepers.—Ed.

the hive, do you think? I have noticed several about. In Germany they sprinkle flour over a bunch of bees going to swarm, so that the owners may know them again if they fly away.

I learn a great deal from your valuable *Journal*, and hope I may make my bees pay me in the end if I follow your directions.

Your correspondent, 'Nunney, Frome,' who suffers so from bee-stings, will feel interested to hear that last year my little boy was stung in the groin, the sting extracted and the poison sucked. The next day a red ring was observed round the ankle, which increased until the whole leg was one mass of red and erysipelas set in. We feared we should lose him from the pain and shock. A ring of caustic drawn round the thigh prevented the inflammation spreading; violet powder and a poppy-head lotion alone soothed him. It lasted about five days.—E. M. T.

[The Leaflets on Swarming and Transferring give the information required in regard thereto. The ragged appearance of the wings of the bees is caused by wear and tear through excessive labour. The hint as to sprinkling with flour is a useful one, and probably will be acted upon now that decoy hives have become fashionable. If our correspondent could only see how easy it is to render bees as harmless as flies, we think her fears would quickly disappear, and the weary watching and waiting be dispensed with.—Ed.]

AMERICAN PROSPECTS.

We get your valuable *Journal* regularly, and are very much pleased with the *earnest* manner in which it is conducted. We have taken the liberty to enclose a cutting from the California *Alta*, May 13 (an extract from *Wentworth's Resources of California*). The California hive is used here, costs $1 50—that is, the hives, brood frames, and honey sections, ready to nail together. We see by your *Journal* that you use a super something like ours. We send you one by this mail, we use 32 or 48 to the hive, the usual yield per hive of super honey is 120 to 150 lbs. per hive. A merchant in San Diego has an order for 100 tons extracted honey from Liverpool. We think it is doubtful whether he can find that quantity, as almost every one will super their honey this season. Our bees are at present making white honey, and as the sage is not yet in we shall probably make two cases (120 lbs.) of 'First Crop.' Your 'Bee Smoker' is very small, you should see the one used in this county. Wishing you every success, &c.—Sawday and Wellington, *Sidmouth Apiaries, Julian City, San Diego Co., June 3rd*, 1876.

'After getting back twenty to thirty miles from the coast, the country is quite broken and hilly, approaching to mountains; almost every ravine affording a little stream; the hills are covered with bushes loaded with blossoms much of the time, and the whole country is covered with white sage—the best bee feed in the world. From this line back for sixty miles or more the bee men have settled in every little nook where water and other facilities are afforded to establish an apiary, and this is soon to become the greatest honey-producing section, perhaps, in the world. The honey produced here excels all other found in Eastern or Western markets, being clearer and more beautiful in appearance, and freer from that harsh, strong taste usually experienced in eating this luxury of our table. The propagation of bees here is wonderful. If left to themselves and facilities afforded, they will increase to an incredible extent. We have heard of eight stands increasing to eighty-one, and another case of five stands increasing to fifty-four, in one season. Mr. Chas. Fox, in the city, said to us: "About seventeen months ago I selected a nice place, fifty miles from here, for my apiary. I had sixty stands of bees, and although a poor year, I realised four and one-half tons—10,100 pounds from them. I expect ten tons this year from my apiary. When I located, there were only two families within four miles of me, and now our neighbourhood contains twelve families—in all eighty people. We expect to sell $30,000 worth of honey from our apiaries this year." Mr. W. J. M. Clark, of Poway Valley, realised from one stand of Italian bees, in the improved Harbison hive, three and one-fourth cases of comb honey—238 pounds, and 48 pounds of strained honey. Total pounds, 286; which he sold for $39 06. Mr. Harbison, in 1874, sold 75 tons—168,000 pounds—of honey from 800 stands.

'The county has 14,000 hives, and last year, with 10,000 hives, produced 265 tons of honey.'

'A NEW METHOD OF SUPERING.'

(*See p.* 184, *Vol. III., British Bee Journal.*)

On the 1st of this month I enlarged a cottage straw hive as directed; it was in a flourishing condition. I examined the cap or bell-glass on the 22nd; it was quite evident no building of combs was going on, and yesterday at 5 p.m. a swarm left it. I used a sheet of perforated zinc as per O. Poole's pattern; shall be glad to hear how others have gone on who have tried the same method of supering. Our seed-fields are full of white clover.—W. D. *Whiston, June 26th*, 1876.

EXPERIENCE AND SUGGESTIONS.

Thanks for your answer to my question as to the straw hive, which I have partly acted upon, and shall complete ready for transferring in the autumn. All seems to be going on gloriously now with the bees, the limes being in full blossom, and the fields brimming over with flowers. The supers I placed over my driven swarms in the bar hives, which I thought were too large, have proved too small, and I have placed an empty box on the floor-board of one, which the bees seem to have taken to, and will probably fill with the best and whitest of honey, as I found them do once before in my fifteen years' experience of bee-keeping. The supers which I placed over the hives, and immediately on the frames, are boxes sawn into sections. One of your correspondents recommended that the small crevices left by the saw should be waxed over, but thinking this might set the bees to work just where they were not wanted, I adopted your quilt idea, or a modification of it, and it has answered, if anything, too well. To hold the sections well together I got some brass screws, such as are ordinarily used for handles for opening small drawers, and with two strips of wood along each side held them together nicely, and before screwing them down placed a strip of Brussels' carpet under the strips of wood down each side, so as to completely cover the box beyond the last section each way. And this has answered only too well in excluding cold from the boxes, though made of thin wood, for the

end comb of one I find to be filled from top to bottom with worker brood; and I suppose the other has brood in it, as I saw the queen trailing her long body in that a day or two ago. This I am not sorry for, under the circumstances, as I want to put a Ligurian queen to each of these in the autumn, and an addition to the population now will be a good thing. Would it not be possible to act upon this hint in the construction of hives, and make them cheaper than ever? Would this be in any respect like Huber's leaf-hive? If it has not already occurred to you I offer it to you as you have ample means at your command, and could carry it out well, and add improvements. If made of inch wood, and a small bottom bar let in each section, it would, I think, be sufficiently warm under a shed to stand during the winter, and the quilt would allow of sufficient ventilation through the sections, which would in themselves form bars, and by having thin slips of wood nailed inside the top guides could be placed evenly along each as in ordinary bars. The hand screws to hold them together would be best made entirely of brass, and being ruffed on the edges could be readily unscrewed by the hand.—C. Shufflebotham, *Coventry, July 17th*, 1876.

[Note.—The hive described is undoubtedly of the Huber and Giotto class, both of which require considerable improvement before they can be recommended for general use.]

SEQUEL TO 'A MYSTERY.'

(*See page* 48.)

I think your explanation of my having found queen-cells with large grubs in my hive twenty-three days after the old queen was removed, and seven days after a princess was liberated, is not the correct one. They all died of the foul disease, but were properly sealed in due course, and being in the midst of the brood-nest, the eggs could not have been there since the old queen left. There were no other eggs or brood. They must have been *carried* from an *outside comb* which had been separated from the others for some weeks. If I am right, then eggs retain their vitality for weeks, and bees do carry them. I forgot to say, perhaps, that when I observed these cells I searched for the young queen and found her *dead* and withered in front of the hive. I have destroyed the combs, and joined the bees to another hive, after keeping them some days in an empty skep. I have scarcely got my bees to do anything in supers yet, the weather has been generally so unfavourable. A few more days of these cold winds and my prospects for the season will be blasted.—Wm. Raitt, *June 23rd*, 1876.

THE QUEEN-BEE AND HER STING.

Respecting the discussion as to the possession of a sting by the 'Queen-bee,' I offer you my experience. On June 26 I was assisting a friend to capture for preservation a queen, which, owing to some cause, was barren. So soon as seen I caught her with my hand, and kept her for some minutes until a glass was procured. In putting under it she escaped, and in recapturing accidentally I hurt her, when she stung me. The pain was not so severe as from the sting of a worker, but on the application of a counter-irritant, the usual mark of a sting was seen.

I enclose for reference the name and address of my friend.—Geo. R. Illingworth.

[Note.—There has never been any doubt as to the queen's possession of a sting, but it is generally believed that she never voluntarily uses it except against a royal rival. It would appear that in catching the queen her sting was forced (involuntarily) into your hand, but that cannot be considered stinging in the true sense of the word. We have often, when holding queens between our lips, been sharply bitten by them, and at first thought the sting had been used, but the queen's position at the moment disproved it. Is it possible that our correspondent has been similarly deceived?—Ed.]

VITALITY OF BEES' EGGS.

Will you kindly favour me with a reply to the following question? As everybody knows bees are oviparous, the queen or mother bee lays eggs which require a certain time and temperature to hatch out into grubs or larvæ. Now what length of time would those eggs retain their vitality in an atmosphere and temperature favourable to their preservation; or, in other words, how long could bees' eggs be kept fresh?—J. S. *Arbroath.*

[We have never experimented on this subject, but have an idea that the temperature and atmosphere favourable to the preservation of bees' eggs would cause them to hatch into life. Perhaps some one who has tried the experiment will give his experience.—Ed.]

WASPS AND HORNETS.

Mr. P. Grieve, of Culford, Bury-St.-Edmunds, writing to a contemporary, says:—'It has long been the custom here to pay men and boys employed in the gardens and grounds a penny for every wasp or hornet captured in, or near to, the gardens up to the end of the month of May. In 1875, 2566 were captured and the sum paid for them was 10*l.* 13*s.* 10*d.*' If this plan was more generally adopted, less damage would be set down to the score of the bee.

A HINT TO ALL INTERESTED IN BEE-KEEPING.

Take your best supers to local flower-shows this year, and try to get the promoters of such organisations to offer prizes for honey, &c., next season, by pointing out how much the labourers and others might gain by keeping bees after an intelligent fashion, and how much pleasure those of the middle class might derive from the pursuit.

UNITING SWARMS.

Having a light second swarm I thought I could not put it to a better use than adding it to a strong swarm that had been working 18 days, and had already filled their hive, and taken to a nadir; so I hived the swarm in a straw super, and, placing a piece of muslin over the round hole in the top of

one of Pagden's straw hives, I placed the super thereon so as to let the scent of the two parties mingle, as recommended in some of my bee-books. I left them thus until the evening, and then drew out the muslin, everything seemed fairly quiet, but on inspecting the super 24 hours after (very hot day in the interim), I found all the bees of the new swarm lying in a mass dead, apparently suffocated. Could this be the case, for even if they had found the super too warm for them, they had a clear passage into the other hive? What would (with Pagden's straw hives) have been the best plan to have adopted to join this swarm to a stock, and is it a plan you approve of so joining them? My plan evidently did not answer.—SHEEPSHEAD.

[In uniting swarms to stocks, or other swarms, it is best to admit them from below. The swarm should be sprinkled almost to saturation with scented syrup, so that they should not appear in the character of robbers; the hive to which they are to be united should be imbued with the same odour if possible, by pouring some of the same kind of syrup into the hive, or by feeding the bees with it for some hours before. In the evening, without disturbance, the hive containing the new swarm should be inverted under the other, and the bees allowed to ascend. Being well laden with honey, and coming quietly, they will almost certainly be well received. Your method would have answered had you cut an entrance-hole in the superposed hive, and after a few days remove the muslin.—ED.]

STRANGE INMATES OF A HIVE.—BEES UNITING SPONTANEOUSLY.

On Tuesday last when preparing a Woodbury hive for the reception of a swarm of bees, my attention was attracted to a structure in a corner of the hive, extending considerably down the side; the exterior was of clay, and on breaking it through I discovered several cellular compartments in which were imbedded several spherical substances about the size of peas, bearing the colour and appearance of mustard, and containing a small insect apparently in the pupa state. I enclose a piece of the structure for your inspection, begging for your kind information as to the nature and intentions of the intruders. I should observe that the hive had previously contained a swarm of bees which did not survive the winter.* A friend of mine recently related the following case to me: will you kindly give me your opinion thereon? Mr. C—— was informed that his bees had swarmed in his own garden. He immediately hived them; but in a short time they all left the hive in which he had placed them, and flew over a low wall into an adjoining garden and entered a hive already inhabited belonging to his neighbour Mr. A——. The question is, did they not first issue from the hive of Mr. A——, or is it probable that bees would enter a house thickly peopled with bees and be allowed to retain peaceable possession if not recently tenants of the same?—C. J. HARLAND, *Castle College, Torquay, 21st June*, 1876.

[NOTE.—It is not at all uncommon for swarms to join hives already occupied, and such are generally well received; for, coming as they do well laden with honey, they do not appear in the character of robbers, and consequently meet with little or no opposition. In such cases they usually cluster about the front of their chosen home for some time before entering, and gradually mingle with their adopted friends.—ED.]

* The cells of clay are those of the mason-bee, of which, according to 'Shuckard,'* there are ten native species. This author has, however, shown himself so utterly *at sea* with regard to the honey-bee (*apis*) that we fear to quote from his work in this particular, lest we might unwittingly propagate error. We have often found this bee in old locks, mortises, nail-holes, and crannies in old posts, and not unfrequently under the floor-boards of the hives. (*See* Answer to Correspondents.)—ED.

* *British Bees: an Introduction to the Study of the Natural History and Economy of the Bees indigenous to the British Isles.* By W. E. Shuckard, &c.

DESTRUCTION OF DRONES.

The weather here during the last month has been miserable for the bees; wind E. and N.E. during nearly the whole of it. But on the latter days of the month, the wind having changed to the S.W., and all my stocks—thanks to gentle and continuous feeding—being very strong, particularly the stocks of Ligurians I had from Mr. Hale in the spring of the past year, and the drones having appeared in it for ten days previously, I drove a swarm from it into one of Mr. Hale's bar-frame hives, using *open* driving; but I did not catch a sight of the queen during the process. I at once placed the forced swarm on the stand on which the old stock has been located ever since I received it, and the old stock on a new stand about twelve yards away from the old stand; and they have both been doing very well ever since. The driving was done at mid-day. As the weather has not been very favourable since the swarm was driven, I have been feeding it through two holes of your feeding stage ever since, and they appear strong and all right; but they have been for some days killing their drones. How can you account for this early massacre? I should like to know. All my other stocks are waiting for more seasonable weather for swarming. I am afraid our prospects of a fine season for apiarians are now but problematical. What do you think?—*Cheshire, 7th June*, 1876.

[In reply, we suggested that the swarm, having a fertile queen, and not being likely to require the drones, was turning them out as idle consumers and enemies to its prosperity. They would doubtless have been welcomed in the driven hive, and would have been useful as heat-producers after the swarm had been driven out, but probably the weather was too cold to permit them to leave the swarm in search of the stock, and hence the martyrdom.—ED.]

A HINT.

I have tried various plans for taking honey and saving the bees, but now consider the super placed on the top the best. I get a dinner-plate the full size of the small-top hive, when, after gently separating it from the stock, I lift it up quickly, place it on my plate, and step off to some dark room or shed, leaving the door a little way open, lay my prize on one side, and gently tap the hives, when the bees will, one after another, leave it

and make for the light, leaving their honey bright and beautiful behind.—J. Rust, *Eridge Castle*, in *Gardener's Chronicle, June 24th*, 1876.

LINCOLNSHIRE BEE-KEEPERS' ASSOCIATION.

The Committee are pleased to announce that they have arranged to hold an indoor Exhibition and Show of Bees, Honey, and Bee-gear at Grantham early in September; and at the same time they will hold their Annual Meeting, when the drawing, &c. will take place (see Rule VIII., *British Bee Journal* for December, 1875). Full particulars, with schedule of prizes, will be given in the *British Bee Journal* for September.

WEST OF ENGLAND APIARIAN SOCIETY.

The Hon. Sec. requests us to state that the time of entry has been extended to the 7th of August without further charge. The Show takes place August 15th and 16th.

LECTURE ON BEE-KEEPING.*

By J. G. Desborough,

Prize Essayist of the Entomological Society for the year 1852, 'On the Duration of Life in the Honey Bee.'

(*Continued from page* 31.)

We will now endeavour to explain what may be termed the old cottage system of bee-keeping, and then go through a few gradual systems of improvement which have led to the present mode of bee management and culture. Almost every one is acquainted with the appearance of the ordinary straw-hive or skep usually seen in the village gardens, with all kinds of covering to keep off the weather, but generally some old broken earthenware vessel. This straw-hive, then, is the home of the bees. Suppose a cottager starts with two hives in the spring of the year, he gets from these two swarms, and most likely two casts or second swarms; and if the season be a favourable one, or both of the first swarms may throw off what is termed a maiden swarm; this all takes place between the month of April and the end of July; in the early part of August the cottager finds himself in possession of seven or eight stocks of bees. He then examines them as to their weight, and selects five or six for what?—utter destruction; and at the appointed time he smothers them with brimstone, and obtains possession not only of all their stores but of their house and home; he proceeds to cut out the combs; he smashes them up placing this mixture in a sieve to drain away what is called honey; and this is his harvest.

Let us now see what the mixture which he calls honey contains. In an earlier part of this lecture we have pointed out the usual contents of a slab of comb in a hive of this kind; the cottager has probably selected the outside combs, containing for the greater part honey only, and drained them separately for his prime quality honey, but this will yield him but a small quantity; the remainder of his combs will contain a mixture of honey, pollen, or bee-bread, brood in various stages of development; the filth from the corners of the cells, arising in the case of an old hive from many generations of bees, and if it be a swarm of the year from at least three or four generations. All this is mixed together and forms a thick viscid mass, which, if exposed to the least dampness, will at once ferment, and the honey will acquire a sharp taste, instead of the fine luxuriant taste of pure honey. Let any one test the quality of pure honey and honey of this character, and he can soon discover the difference. Let a table-spoonful of pure honey be put into a wine-glass (one with a pointed bottom is the best for the purpose), now add sufficient water to fill the glass and stir it well, so that the honey is dissolved. Let the same be done with the honey obtained from the dirty combs; let the two glasses stand awhile and a sediment will be found in one glass, but none in the other. This sediment is the impurity which he ought to get rid of, or rather which he ought never to have had; with hives on the cottage or skep system this is impossible. The first step towards improvement is that of providing a separate place for the deposit, and storing of the honey in a pure state, apart from the general habitation of the bees. This is done by having the hive constructed with a flat top, and a hole in the centre giving access to a smaller hive or cap placed thereon. As soon as the population of the hive begins to increase in the spring, this cap or super as it is also called, is placed on the hive, and the bees commence building their combs therein, and make it a honey-store; but if the queen be very prolific, or in case honey-gathering has been carried on to such an extent as to fill the cells in the bottom part of the hive with honey, thereby curtailing the space for breeding, she will ascend into the cap and deposit eggs there, which at once spoils the contrivance, because the object of placing the cap on the hive was to get it filled with honey without having any brood; however, this is the risk the bee-keeper has to run; he can do nothing to prevent it, and when he takes off the cap he finds nearly a similar state of things to that of his old hive, except perhaps that the cells having had only one generation of bees raised therein will not be so dirty or discoloured.

Sometimes this cap or super is not placed on the hive until it has swarmed, and then, if the honey season is favourable, the bee-keeper may get it filled without any brood having been therein, and the honey will be pure, so that he has succeeded in obtaining honey without having to kill his bees in order to get it. This cap or super system is one of the most easy systems of management and one which very often succeeds, and is one of the best for a bee-keeper to commence with, and to adopt until he becomes more fully acquainted with the habits of the bee, and the obtaining a good cap of honey will be an encouragement to him and a reward for his trouble.

Another system of obtaining honey pure and free from the pollution of brood comb, is the collateral system, or that of placing a box or hive, or even a glass, by the side of the stock hive; this possesses several advantages over the cap or supering system, and it has also its disadvantages. The advantage chiefly is that the queen is not so likely to get into the side-box as she is to get into a super or cap, there is a complete break between the combs, and as the queen prefers to travel on a comb she is stopped in her progress from one to the other; and if the openings from the stock to the side-box are made near the bottom of the hive, the chances are more against the queen getting therein to deposit eggs. There is a disadvantage in the collateral system, arising from the loss of heat, or rather the heat generated in the stock hive is not utilized, and in cold weather the side box speedily loses its heat, causing the bees to cease working therein, whilst in the cap or super system the heat of the stock hive ascends, and the bees continue their work for a longer period. The honey obtained from a side box is much more likely to be pure and free from brood than that obtained in a cap; but in case the queen has once commenced depositing eggs in a side box she is very

* Sent in competition as a Prize Essay to the British Bee-keepers' Association, Crystal Palace Show, 1875. Class 32.

likely to remain there, and by this means the side box becomes the stock hive instead of a honey store.

We cannot be expected, in alluding to the various systems of bee management to explain all the details of each kind of hive, or to mention every kind of hive or the means of overcoming difficulties which may arise in the course of a summer's management of an apiary. It is sufficient for our purpose if the general principles are explained, and we must leave it to the apiarian himself to progress in his knowledge from experience gained by observation and practice. We can only give a passing comment on the hives alluded to in the lecture.

There is a system by which a considerable amount of honey in glasses may be obtained, called the inverted system, where the hive or stock is beneath a kind of stage, whereon a number of glasses may be placed, and although occasionally the queen may get into one of these glasses and spoil the purity of the honey, yet a considerable quantity of pure honey may be obtained; but it is open to the objection that swarming may take place, and with the swarm departs the extra population which would have filled the glasses, and the swarm must be returned if the honey gathering is to be continued or the swarm may be set up as a separate stock.

There are many other systems and many descriptions of hives, being simply modifications or different arrangements of those we have very shortly described, but the most important improvement in bee management is the adoption of a hive known as the Bar Frame hive. By the use of this hive the interior is always open to the examination of the bee-master; he is enabled to judge when he inspects it what is wanted to be done to carry out any particular object he has in view. This hive may be described as simply a box with a moveable top, fitted up with bars so arranged as to be kept at equal distances, enabling each separate comb to be built on a separate bar, and each bar has a kind of frame attached within which the comb is to be built. If the hive be stocked with a swarm, and the bees are to build the combs themselves a strip of wax or guide comb is attached to induce them to construct the combs straight, but the great advantage of the bar-frame hive is that combs may be transferred from any hive to the bar-frame hive and placed in a proper position before the bees are added, thus saving the time which the bees must occupy in building the combs. The bar-frames should be made interchangeable; and, therefore, when an apiarian adopts this system his hives should be all of one size, so that his bar-frames may be taken from one hive to another, according to the changes he may require to make in the working of his stocks.

It cannot be expected, as we have before said, within the limited space of a lecture, that full details can be given of the construction and management of the bar-frame hive, or indeed of any particular kind of hive, but the allusion to general principles and advantages must suffice; and when the apiarian has decided upon what he intends to do, he can readily obtain such practical information as may be necessary from the published 'bee-books' of the day; we would, however, most strongly advise him to lose no chance of witnessing the manipulation of live bees, such as the driving of bees, the transfer of combs from old stocks to the bar-frame hive; or, indeed, any other operation whenever opportunity occurs, because he will, if he has never seen such an operation performed, scarcely believe with what ease it can be done, and confidence one very great adjunct, if not the greatest acquirement the bee-keeper can possess, is either gained or increased; and however practised the bee-master may be in the art, something may be learned or something observed which he has never observed before.

In speaking of the bar-frame hive, let it not be confounded with the bar hive. The arrangement in a bar hive not having the combs built in frames as well as on bars, will not allow of their being lifted out of the hive for examination; each comb although attached to a bar is liable to be fastened to each side of the hive by the bees, and so prevent the withdrawal; but the bar frame contains the whole comb within its limits, and being entirely detached from the hive, can easily be lifted out and withdrawn. A very complicated hive embracing this principle was made some years ago, by the late Major Munn; and he so arranged his bar-frames, that each could be lifted up into a glass frame for examination, thereby preventing the bees from getting loose and stinging the operator; but no fear need be entertained that the bees will leave the comb when it is lifted out, provided the bee-master does it quietly and confidently; and, here again, comes into play the advantage of having seen a bar-frame hive dealt with by a skilful apiarian; it creates confidence in the novice. Again, the bar-frame hive enables you to transfer ready-made combs from other stocks, or combs which may have been preserved for the purpose, because they may be kept in their proper place by having tapes passed round them until the bees have fastened them to the frames (the tapes being taken away in a day or two), and it is impossible to do this with the bars alone, because it is impracticable to keep the combs upright and at equal distances, which, if not done, renders them useless for any purpose in the hive. The time saved to the bees in thus having combs supplied must also be borne in mind; true, such combs may require a little repairing; the time of a good swarm is occupied from ten days to a fortnight in building combs; and during this time, which may be in the height of the honey-gathering season, the bees might have been profitably employed in filling combs instead of in building them, had the hive been furnished with comb in the first instance; the bee-keeper will do well therefore to save every fragment of old comb he can when operating upon hives of any description, for it does not require that the pieces of comb should be exactly of the size of the bar-frame; if the piece of comb be large enough to be held by a tape in its proper place, so that the bar can be introduced into the hive, the bees will very quickly make all right, and extend the combs to fill up the vacant spaces in the frames. They show wonderful instinct in repairing damage or adapting themselves to circumstances; and when we tell you that the bees have to consume or eat twenty pounds weight of honey in order to secrete one pound of wax for comb-building, and that the weight of the wax in an ordinary hive is about one pound, you may imagine easily what a great saving it is to the bees to supply them with ready-made comb; thus enabling the bee-master to employ his bees in collecting honey instead of building up the furniture of the hive.

A question will now undoubtedly occur to you, how is the honey to be obtained if you are not to break up the combs to get it? For this purpose we invoke the aid of a new machine, invented by our American cousins, 'the Honey Slinger.' By using this machine the bars when taken out of the hives can be emptied of their honey without being broken up, and they can either then be returned to be refilled or to be used again in the hive for any other purpose requisite at the time.

This honey slinger is a somewhat expensive machine, and it will not answer for a bee-keeper to have one unless he has a number of hives, but presuming he has ten or fifteen hives, if there be honey gathering for a fortnight (and very seldom in this country does the honey season last continuously so long), he can empty his combs each day and return them, thereby keeping the bees at work instead of ceasing honey gathering, for the only reason that the bees have no place in which to store it.

A very good suggestion has been made, that the honey slinger should form part of the ordinary appliances of a village, like the reaping-machine, or the thrashing-machine, so that it might be hired at a trifling cost by

the small bee-keeper; or, what would be much better, that the squire or clergyman of the village, desirous of advancing apicultural science, might supply one for the gratuitous use of his tenants or parishioners. Much aid and encouragement may be given by a very small outlay by a man of means, in this respect, to his poorer neighbours.

Of course, the honey slinger must be used with some degree of discretion and judgment; all the stocks will not be in a condition to have the honey taken away from them, it will be only from those where extra population exists that any great supply of honey can be obtained; and this question of extra population is the subject we shall touch upon as a conclusion to the lecture.

This question of surplus population is of a most important character, although we have not yet touched upon it, except as a slight allusion thereto when we spoke of obtaining honey in glasses. We have shown that as soon as a hive becomes overcrowded, a division of the population takes place, and each of the separate colonies thus formed retains only sufficient numbers to carry on the ordinary œconomy of the hive, and lay up a store of honey for the winter, and it is only in very good and favourable seasons that they can gather any additional store; it becomes, therefore, of the utmost importance that the surplus population which has gone off with the swarms should, if possible, be retained. This is effected by giving the bees additional room, as it may be wanted; yet although such additional room may be supplied, the bees will, nevertheless, occasionally swarm and thus defeat the object of the bee-master, and he must then either return the swarm by taking away the queen, or he can set up the swarm as an additional stock; if, however, he has adopted the system now well known as the bar-frame system, he can prevent all this mischief by getting a complete view of the interior of the hive, and he can easily adopt means to prevent swarming, keeping his surplus population together, and getting thereby a supply of honey; and when the extra population of a hive can be kept together by adapting the circumstances of the hive to suit the necessities of the bees, and render them so comfortable as to prevent swarming, it must be apparent that when this extra population may be counted by many thousands, the extra store laid up by these bees ought to be looked upon as one of the greatest aims of the bee-keeper to attain, ensuring thereby profit and success. Whether this extra store is to be taken from the bees in the shape of honey in glasses, or in the shape of clear honey obtained by the aid of the honey slinger, must be left to the bee-master to determine and arrange his hives accordingly.

In endeavouring within the space of a short lecture like the present one, to lay before you the outline (for it can be but a mere outline) of the principles and practice of bee-keeping, we wish it to be thoroughly understood that it must not be expected that proficiency in the art can be attained all at once, there is no royal road to apiarian knowledge; experience is a most necessary element; still, on the other hand, let not these words act as any discouragement; begin, and do not attempt too much until your bees and yourself are on good terms; keep a note-book, observe and note every occurrence, and you will find a reference to your note-book in cases of difficulty of the utmost service to you; again, let it not be thought a matter of necessity that you must have a large garden to keep bees; however large your garden, the bees will roam beyond the boundary, and collect honey from your neighbours' as well as your own flowers; under the system when your stocks were increased by the natural process of swarming, a garden of somewhat ordinary size was needful to enable the swarms to settle; but now that the increase in the number of stocks in an apiary may be entirely under the control of the bee-master, and no swarming need take place, no extensive garden is necessary; all that is required, is a good, clear approach to the hives, so that the bees may have a fair open flight; nor need the occupation of the bee-master even be a rural one. The first bee-book purchased and studied by the author of this lecture was written by a gentleman holding the position of a clerk in one of the largest breweries in London, yet his book was of the most practical kind, and the observation is therefore repeated; be not discouraged either by your occupation or your garden not affording in your own estimation facilities for pursuing this most interesting science.

Many listeners to this lecture may perhaps now for the first time have heard of the science and art of bee-keeping; if any of them may be induced to take up the subject either for amusement, pleasure, or profit, one great object of this lecture will be answered; and should others who may know something of the art have heard some fact, which was previously unknown to them, and which will be of advantage in the future management of their apiaries, the labour of compiling this lecture will not have been thrown away or regretted.

The following schedule may assist in arranging materials for the illustration of the lecture with such additions thereto as may suggest themselves to, or be within the reach of the lecturer.

Preserved specimens of the queen, drone, and worker bees.

A slab of honey-comb from the centre of a hive.

A clean piece of honey-comb to show its wonderful construction.

A cottage hive.

A straw hive with a hole in the top, and a super.

Pure honey, impure honey, and two wine glasses.

A collateral hive.

An inverted hive with stage for glasses.

The bar-frame hive, and a bar hive.

An empty bar, a prepared bar with the comb tied therein with tape ready to be inserted in a hive. A bar similar to the last which has been put into a hive and fastened to the frame by the bees, the tapes left partly on, showing how they can be removed.

A honey slinger.

RURAL SUPERSTITION.

The correepondent of a contemporary writes:—

'The custom of informing the bees of the death of their master prevails more or less in most of the southern counties. A person told me a few days ago that her grandfather, who lived in Oxfordshire, had seventeen beehives, and when he died the bees were not informed of it: "The consequence was, every one of the bees died." By the same person I was told that it was customary in Oxfordshire not only to inform the bees of the death of their master, but also of a change of masters; and this is done by giving the hives a few gentle strokes with a stick, and at the same time saying such words as, "Your master is dead," &c. In some parts of Dorset, too, the custom is very prevalent. A person living near Shaftesbury told me that he forgot to inform his bees of the death of his wife, and soon after every one of them died, "leaving honey in the pot," thus showing that they did not die of starvation. On the death of his sister this person hung a piece of crape on the hive, and at another time gave the bees a piece of "funeral cake" to feast on.

BEES.

Hark! the bees are all awaking,
And their tumbled wings are shaking;
Spring puts on her new green cover,
Spread with buttercups and clover,
Daffodils and cuckoo-wake;
What a breakfast they will make!

Down the archèd sun-flecked shade
Summer comes, in white arrayed:

She has heard from Auld-lang-syne
That the bees will want to dine,
And she hastes her feast to lay
Of the sun-steeped flowers of day—
Tulips, lilies, peonies* hot,
Jasmine, rose,* forget-me-not;
Thousand others they'll partake—
What a dinner they will make!

Autumn! with thy yellow gown,
Soft white cap and apron brown,
Keep thy hands, o'erladen, steady,
And for supper make thee ready:
Spread thy heath and gorse of gold,
And thy hare-bells manifold,
Knapweed, woad, and scabious gray,
Poppies, brighter than the day;
Hasten, for the sweet bees' sake;
What a supper they will make!

Then, when the repast is done,
And earth puts her mist-robe on,
Light thy yellow moon divine,
Trim the stars and make them shine,
And, ere rosy day hath fled,
Light the bees unto their bed.

There dream they, thro' their sleep, of flowers
That robe this grand old earth of ours,
Gushing from mountain, brake, and fen,
God's love thus syllabled to men:
Oh, glorious bees, thro' winter hours,
We, too, have dreams, long dreams of flowers!

WRAXALL HALL.

Echoes from the Hives.

Bishop Stortford.—'What splendid weather it is here! This year will make up for all the past bad years. The effect of feeding is very marked; such thumping swarms and heavy hives, I can scarcely lift them. The limes will soon be out here, and if only we could give the bees plenty of empty comb they would soon fill it. My apiary (containing nearly forty hives) is full, and I am filling cheese-boxes with swarms, which I can sell or drive and appropriate in the autumn. I only started with twenty last autumn, lost two through the queen dying (I expect). As I told you in my last, my cottage neighbours lost most of their stock for want of a little feeding.'—G. T.

Stamford.—'The weather is now all we can wish for for bees, but I shall not get much honey, as I have managed the bees more to get up our number of stocks to redeem us from bankruptcy. The circumstance of the bees being all old in the spring, and so having run out their lives, is well worth consideration, as the cause amongst others of the great mortality.'—J. G. D.

Copenhagen.—'May was a trying month for all, especially for beekeepers, but the month of June was delightful, and the bees have swarmed freely. On this account I do not expect any large harvest of honey, unless, perhaps, the lime-tree is very successful in its blooming. I find that the cross between the grey bee and the Ligurian is preferable to the pure blood.'—J. R. C.

Newark.—'I had my first day's slinging yesterday, and used the Little Wonder with perfect success, only there might be a bigger well at the bottom, as we had to empty after each comb. I got 17 lbs. out of a hive which was a swarm only five weeks since, and two from a comb or two out of a hive which had swarmed a week since, and which, perhaps, it had been better to have let alone. Then, out of an old stock which I expected to swarm every day, I got 31 lbs., having slung every comb but the one on which the queen was. Now, will that delay their swarming? [It ought to do so.—ED.] I could not find a queen-cell, but if I had another empty hive, which I have not, I should take her out and divide the hive, as I have lots of queen-cells on combs in other hives. Our flower show on Thursday was not well attended, but the bees got their share of attention. Every one was very pleased.'

Oxenden, Market Harborough.—'I think an Extractor would be of great service now, as our bees are choking the hives up with honey, leaving no breeding space. I am sorry to say I have lost a swarm, headed with a very fine queen, that I had from you two years last autumn.'

Chorley, Lanc.—'We have had capital weather for bees since the middle of June, and my hives have increased in weight rapidly. I have taken some splendid supers off my large straw hive.'

Sidlesham, Chichester.—'Last week I send 2 cwt. of super comb to the Brighton Floral Fête, which was all sold at exceedingly remunerative rates, and I intend sending a similar quantity to a local show about three weeks hence. I have an agent who gives 1*s.* 8*d.* per lb. cash by the cwt., so that I do not care to sell single combs of a few pounds weight only. At present I am very doubtful whether I shall exhibit at the Alexandra Palace in September next. From here there is no place so difficult of access as that, and the sublime notion of being encumbered with 2 cwt. or more of honeycomb in supers in the crowded streets of yonder Babylon, going from railway station to railway station until the fragile weight is safely deposited at the Alexandra Palace, is too appalling to be entertained. As Artemus Ward would say, "'Tis too mutch! too mutch!" Weather still fine, honey still in abundance. This year will long be remembered as one of the most favourable ever known to bee-keepers in this district.'—A. R.

Byfleet.—'My bees are doing wonders in the way of honey-gathering.'—C. M.

Perthshire.—'I am sorry to say that the bees in this quarter are doing very badly this year. There will be no supers for the show, I am afraid; there are very few swarms off, and the weather is very bad for honey-gathering; but, I trust, it will yet turn for the better.'—July 20th, 1876.

Belvoir, Grantham.—'I find everywhere in my neighbourhood a growing thirst for more knowledge regarding the habits and economy of the honey-bee.'

Droitwich.—'Mr. Martin likes his Little Wonder uncommonly. When he had it first (before he'd tried it), he did not like the look of it at all, but now I don't expect he would like to be without it. Our show will take place about the middle of October, and will be held in the Market Hall, Worcester, in conjunction with the "Root," &c. (not implements) Show of the Worcestershire Agricultural Society; but I will send you further particulars with the current day, &c., in time for the next number of *Journal*. Being held in the Market Hall, I don't see very well how we could have live bees if they had been allowed, as it is in the centre of the city. A good many I have spoken to regret the not having any manipulation, but, I hope, we shall be able to get a good show of honey, &c., to make amends.'—H. W.

Ayr, N.B.—'I have to thank you for your good advice to "feed, feed the bees," and not to despair; and I did feed till the third week of June, and am now reaping the harvest. We have had lovely weather, and the making of clover-honey has been very rapid. I am taking off every day grand supers, with about 30 lbs. of beautiful honey; in more than one the combs are *three inches* thick. I never saw the like; and if I was nearer London I think I could show a super worth looking at. You may well say, "Feed, feed."'—R. D. F.

Ware.—'To-day (July 17th) I have just taken a super (home-made) weighing 27 lbs. from a Woodbury Cottage

* A poetic fancy, but not fact.

Hive. Bees having only been hived in the hive on May 19th, of course I had prepared old comb for them. I think this is exceptionally quick work. They are now working again in a Lee super.'

Lisburne, Ireland.—'Bees are doing splendid as far as swarms go. I never saw a better year for them, but we have no sale for them here.'

Horsham, July 26.—'Your "Little Wonder" is becoming indispensable to a moderate apiary, and I am continually recommending it to my "*jeunes élèves.*" I have now two orders for you, to be sent as soon as you can possibly send them.'

'Bees in this district have done well during the last month, which will make up in part for the severe losses of last winter and spring. I lost seven stocks out of fourteen I commenced the winter with, and many of my bee-keeping friends had only one, and some none, left at all, particularly those who managed on the let-alone principles.'—A Mid-Lincolnshire Bee-keeper.

Kelvedon, Essex.—'My bees are doing well. I have taken about 200 lbs. very fine honey, and I hope to take 300 lbs. more. The season opened late, but has been far above the average. The under hives I told you of have been very successful. I have taken two, 44 lbs. and 45 lbs. respectively, and the stocks are at work on two more. I have about ten under hives working and about seventeen supers and glasses, and four side boxes. There is a large quantity of honey in the district. A large farm was sold last year in small lots, and was bought by seed-growers for turnip, mignonette, &c., which makes this a first-rate district. I have some splendid glasses and supers suitable for exhibition.'—W. T. B.

Albrighton, July 10th.—'One of my hives, a Stewarton, is storified eight stories (*i. e.* three 7-inch breeding boxes, and five supers in honey boxes), and the bees are working quite up to the top of the pile. The three lower supers are full and sealed, and ready to remove; they contain, as nearly as I can judge, about 70 lbs. of perfectly pure virgin honey. The Stewarton system of putting the fresh empty supers upon the top of those which are already partially filled seems to work very well, and the bees appear to take to the new boxes with very little trouble.'

Edinthorpe Rectory, North Walsham.—'I had a swarm at half past eight one morning; a small one, though I think it must have been a first. The day before, and that day, a bar-frame hive, in which some four days before a splendid swarm was hived, was in a terrible state of uproar, and the bees were running in a very excited state all over the hive outside, and were, seemingly, trying to rob or enter other hives; and, feeling certain that the queen must have been either dead or lost, I smoked both hives, took off the quilt of the bar frame, sprinkled both with syrup (pepperminted), placed the small swarm on the frame, and gave the straw hive a good smack on the top, and in a few hours (and after a few bees, but not many, were killed) all was quiet, and the hive shows itself to be strong and has made a lot of comb. I wonder if I acted right in this dilemna?'

Bossell Park, Buckfastleigh, Devon.—'Nothing can be simpler than your "Little Wonder" honey extractor. I have used it several times, and it answers admirably. Indeed, for a small apiary, using Woodbury frames and straw skeps, none is necessary besides. Its portability, size, and cost, bring it within the reach of the true cottage bee-keeper. Since the cold east winds of the early part of June and the whole of May have passed away, we have had, here, a season of prosperity for the bees. Those who took care of their bees in the advanced manner, as recommended in the *Journal*, have been reaping the fruits of their judicious care in increased stocks and in supers, but the months of April and May almost killed out all the stocks of many bee-keepers, who had entirely neglected them last autumn and this spring—one having lost, out of a large number, all but two stocks, which are barely strong enough to collect sufficient stores to go through next winter. Many people, near here, who have kept bees for forty or fifty years, are now without a single stock. But I am delighted to inform you that the light of apiarian truth has shone into this neighbourhood, and that, through the instruction given in the *British Bee Journal*, and by the help of your advice from time to time, by letter, I have been able to teach a better method to several cottagers, who are adopting the most approved system of management. I am quite sure the number will increase, and I sincerely trust you will not flag in your work, but will soon see a satisfactory result for your labours in all parts of the country, from John O'Groat's to Land's End. In addition to continuing as a member of the British Bee-keepers' Association, I have joined that of the Devon and Exeter, and I hope that the head and its numerous branches will all have a measure of success. If any of the foregoing is of any use to you, you are at liberty to economise it and to make use of my name.'—James Hamlyn.

Grantham.—'Three months back from all sides of us were heard such doleful cries of, "I have lost most of my bees," "I have lost nearly all my bees;" and in too many instances it was, "I have lost all my poor bees." In April I had a short ramble. I took with me an old *net*, and being desirous of ascertaining, as far as possible, the true state of affairs, we, whenever we sighted a bee-hive, "introduced" ourselves to its owner, and asked how his or her bees fared. The result of our many inquiries was truly lamentable. I may here mention in one village, where there were three bee-keepers, one had lost all his stock (12); another all his (14); the third had two left out of 26. So much for past experience, from which, let us hope, we all may learn a lesson. Now for the present. Hurrah! the good times have at last come for us; and if outsiders, when they hear of the great takes, don't all go in for bee-keeping, I shall be inclined to think they don't care for either honey or money. One of my neighbours told me, last week, he had drawn on account 72 lbs. of splendid honey from four stocks; another, that he had drawn nearly 100 lbs. from five stocks, and hoped to have another good draw before drawing a balance for the season. And, Mr. Editor, if I could but get one of those "Little Wonders" of yours, I would draw a company together to see the delicious nectar extracted in a way they had never before seen, and in such quantities that they probably would not believe if they did not witness it. Swarming has been very good in this neighbourhood throughout June, and some remarkable instances have been noted: altogether it's one to us bee-keepers this season.'—R. R. G.

'I tried the "Little Wonder" the other afternoon, and to my surprise got 40 lbs. of honey. I have more to extract when I get the opportunity.'—G. L. W.

Runcorn.—'Notwithstanding the late season and cold easterly winds, my bees are doing wonders. I commenced with two stocks in straw skeps, and have increased to eight, all placed in Carr Stewarton Hives. My first two swarms, June 19th, have filled both body boxes and one super, each almost sealed up. I had to give them each another super, which they are now combing.'—W. B.

'The Slinger had arrived when I reached home yesterday, and I immediately slung a comb with great success, the Little Wonder doing its work splendidly. The comb was a little damaged, as it was not built quite straight.'—G.W., *St. George's Hospital.*

Warwickshire.—'This seems a good honey season. One of my hives has filled, and is sealing, thirteen of your sections. On Saturday I emptied a straw super containing 11 lbs. from a hive which has swarmed twice this year, and I have several others ready to take. Perhaps it may interest you to know that on Monday fortnight I had a very large swarm from a straw hive as early as eight in

the morning, and that I yesterday hived a swarm from a friend's hive, which I saw issue myself somewhat after 6.30 in the evening. This, too, was a large one, and the hive has filled a large super.'

Mitcham Hall.—'My apiary this hot weather keeps us busy. All have flourished, and if this sunshine continues the cold honeyless May will be made up for. The quilt has triumphed, and not one of the quilted hives but is in fine condition.'—S.

Galway.—'There is no doubt but the *British Bee Journal* and its editor are doing their work well, and of great service to the friends of the bee. I was thinking the other day if one of the members of your society could come over to Ireland for a few days, to lecture on bees—say three lectures in Dublin, two in Cork, and two in Belfast—I think it would pay well if it was advertised a little beforehand in the *Freeman's Journal* of Dublin, and at the end to form a society and to advise them to have a bee and honey-show once a-year.'

'I never saw the *Bee Journal* till this month. Every one that keep bees ought to have it and the catalogue.'—RICHD. DELL.

Rochdale, June 24.—'I beg to offer you a little of my doings with my bees. In the first place, I have made six or seven artificial swarms. They are all doing well. I put some of them into Bar hives, some into Straw. I can work them well together. My swarms in my straw hive I have got the bees to work the combs to the bottom; my stock hives are now piping very nicely. Those I put in the Bar hives I gave some beautiful comb, and they have filled them up very well. A short time since I went to Devonshire; I found a great destruction of stocks. Mr. Pettigrew has a letter in the *Cottage Gardener*, to say he puts a cloth round the hives when driving. I do nothing of the sort, and can drive them to large or to small hives. In my six hives I drove, I think I only got stung twice. I think the artificial swarming is the best plan decidedly. I now think I shall come to the Show if I have anything, but will send you word soon. Hope we shall have a good show. I have sold near 7 hundredweight of honey this year, and better than 2 hundredweight of honeycomb. I think we shall have a good year. Swarms will be dear, I think. If I find I have a good stock, I make an artificial swarm; also in about a fortnight or three weeks I get a natural swarm, and think that is good. I have got a good many of the old bee-keepers to practise artificial swarming, and they can manage a deal better now.'—JOHN WRIGLEY, 217 *Yorkshire Street.*

Queries and Replies.

> ——'Si quid novisti rectius istis,
> Candidus imperti; si non, his utere mecum.'
> HORACE.
>
> ——'And if a better system's thine
> Impart it frankly, or make use of mine.'
> FRANCIS'S TRANSLATION.

QUERY No. 161.—I have five frame-hives—Woodburys—with bees. I attached guide-combs 'two or three cells' thickness' on all the frames; but the bees have torn it away in some places, and built crooked, each comb crossing three or four frames. As I intend to try artificial swarming next spring, what is the best thing for me to do? They were hived on June 1st, 6th, 10th, 12th, and 25th respectively. I ought to state that the last hive is building straight.—W. H. J., *June* 30, 1876.

REPLY TO QUERY No. 161.—It is a mistake to suppose the bees tore the guides away, the fact being they were insufficiently fastened, and the weight of the bees probably broke them down. We can only advise you to wait until the autumn or spring, when the combs will be tougher than now, and then to transfer them and fix them straight in the frames. It is highly dangerous to meddle with new combs in hot weather.—ED.

QUERY No. 162.—Do you, in the *Bee Journal*, insert questions seeking for information of a simple kind from bee-keepers? If you do, would you be kind enough to insert the following:—

1. In bar-frame hives can you watch the bees working, &c., without disturbing them?

2. Do the bar-frame hives require a covering of any kind? If so, of what kind? And the best situation, face, &c., for hives?

3. How are the brood-comb, queen-comb, and other kind of combs distinguished?

If you do insert such questions as these, I should be obliged if you would send me the number of your *Journal* containing them and the answers.

If any of your Leaflets answer any of these questions, I should be glad if you would send them to me.—G. H. CHILCOTT, *Truro.*

REPLY TO QUERY No. 162.—1. Yes, if the sides be made of glass.

2. They require roofs or sheds to shade or keep them dry; and, according to the thickness, or number of thicknesses of the material used in their manufacture, they require outer protection or otherwise. Hives do best when they stand where the sun can shine upon them during some parts of the day. A south-eastern aspect is considered best.

3. By their sizes—see pp. 21 and 39 of current vol. of *Journal.*—ED.

QUERY No. 163.—IDENTIFYING BEES.—Be kind enough to tell me, in your next *Journal*, how I can know my bees when at work; from others about 1½ miles from Southwark Park, as it is white with clover, and I think my bees feed there.—H. BRIGGS, 92 *Trafalgar Street, Walworth.*

REPLY TO QUERY No. 163.—It is customary to powder bees as they leave the hive with flour or violet-powder, which may be tinted of any colour, so as to be a distinguishing badge on their backs. Powdered ochre will also answer the purpose well.—ED.

QUERY No. 164.—Please to inform me how to pack three swarms of bees that I wish to send to London. One lot swarmed a fortnight ago, and one lot about a week ago, and one lot on Monday last. I sent a swarm to Dover in a hive turned upside down with canvas over the top, and they died; and I sent another lot with the hive as it usually stands, and a stick tied across the bottom, and they died. I fancy they were suffocated, as the canvas was soaked with honey from the combs which they had made. It seems a rather ticklish job when they have swarmed some days.

P.S.—All the swarms have been fed except the lot that came off on Monday last.—*Brede, Ashford, June 28th,* 1876.

REPLY TO QUERY No. 164.—Swarms should be sent out on the day of swarming, or at least before they have an opportunity for comb-building, as new combs are so very tender that the least jar will cause them to fall; and as they will probably contain honey, it will smear and and smother the bees, as you have experienced.

You should remove every bit of comb if you intend to send the swarms named, and feed them before sending; but it will be a cruel injury to them, taking away the fruits of their labour, and causing them to start anew. Send the skeps bottom upwards, covered with open cheese cloth, or strainer canvas.—ED.

QUERY No. 165.—If you can give me any method to find out the nests of wild bees, I should be obliged. I mean nests of bees that have strayed from hives and located themselves in hollow trees, &c; also the best way to get them and their combs into hives. I remember reading something somewhere how to trace the bees to

their nests, but do not remember sufficiently well to carry it out. If you cannot give me a satisfactory answer, insert the query in *British Bee Journal*.—J. R.

Reply to Query No. 165.—If you are sure that there *are* wild bees in your locality, it will be easy to trace them to their homes. Lay down some thin honey, so that they cannot drown in it (a float-feeder with the glass top removed would form a capital vehicle), and place it where the bees will find it. Then, when they have taken home specimens of their newly-discovered treasure, and have established a line of foragers (which they will quickly do, especially when honey in the fields is scarce), follow the line they indicate, taking the lure with you as far as you have seen them go, and there repeat the operation. Be careful to follow in one direction only, remembering that bees will occasionally depart from 'a bee line' to skirt a wood, or avoid a range of high buildings; and, as a rule, within two or three miles you will find their nest. For the means of transferring we must refer you to the Leaflet on that subject, premising that, to get bees out of a tree, an opening must be made, which will often necessitate the cutting down the part of the tree containing them. There are other methods of finding bees' nests, but that given above is simple and is certain in operation.—Ed.

Query No. 166.—Glass Hives.—Will you kindly answer the following question in your next issue of the *Journal*? I constructed a glass hive last year for observation purposes. Its dimensions are 10 in. broad, 12 in. deep, with bars out top for fixing combs, but no frames down the sides; it had a crown board on top. I put in a swarm, which was a small one, however; I fed them regularly till the end of October, when the hive was full of comb and bees; I may state that I had a wooden cover to protect it, 2 in. larger than the hive, which I packed all round with meadow hay to protect them from the cold. I did not examine them till the 1st of February; the floor-board was lying an inch thick with dead bees. I took and cleaned them off, and examined the combs, which had all moulded; there was plenty of food in them. I gave them a dry floor-board, and packed them up again. I observed that the bees that came out after that, invariably ran over the board and fell on the ground; they died out altogether about the end of March. My idea was that the glass had been too cold for them getting up, and that they just fell on to the board and died. I have put frames down the sides this year, and filled them with comb, which I intend to fill with a second swarm to-morrow. Please state if you think I might risk to winter them in it this year.—John White, *Falkland, Fifeshire, N.B., July 10th*, 1876.

Reply to Query No. 166.—The hive will do very well for wintering if you will do away with the abominable crown-board, and use the quilt, *i.e.* three or four thicknesses of old carpet, laid upon the frames at the top. The space above the quilt should be clear, air being allowed to circulate between it and the roof. The quilt, as a winter covering, has had a good trial, and has everywhere proved triumphant when rightly managed.—Ed.

Query No. 167.—On the 30th May I had a first swarm from a common straw skep, which I hived in one of Neighbour's bar-frame hives. On the 25th June it had the hive completely full, and showing evident signs of swarming. I opened up the hive, took out the queen, clipped one wing, so that she could not fly, shut down the hive again, and put on supers. From that day until this the bees have done nothing but swarm every warm day, and as soon as hived, rise again and return to the parent hive. I am now coming to the extraordinary part. This day, it being extremely warm, they as usual started and clustered on a pear-tree. I was so tired of shaking them into hives that I took no trouble, but threw a sheet over them to shield them from the sun, feeling quite sure they would return again; when, to my horror, I found, after leaving them for about five minutes, that they had truly taken to themselves wings, and were nowhere to be found. They have not returned to the parent hive. How, then, account for the queen with the clipped wing? Did she, finding her own inability to lead the swarm, permit a princess to be reared? or did the bees, when their instinct told them she could not accompany them, destroy her and then rear young queens? Whichever is the correct theory, I would strongly recommend none of your readers to follow my example, and endeavour to prevent swarming by mutilating the queen, as from the day I did so (now three weeks ago) the hive did no work and the bees steadily refused to enter the supers.—F. W. A., *Shanakeil, Cork*.

Reply to Query No. 167.—Clipping a queen's wings will not prevent swarming or the desire for it. Evidently the bees had prepared for their happy exodus, and swarmed out, as is usual; but the queen, falling to the ground, could not join them, and they being unable to discover *her*, returned to the hive, the queen eventually rejoining them by crawling back to the cluster as they hung outside. This might go on until a young queen came forth and took the lead in the swarming, as occurred when, finding herself neglected, she, in a spirit of lightheartedness, took them to fresh fields and pastures new. Clipping the wings simply prevents a queen leaving with a swarm without any warning of swarming being in preparation. Had our correspondent understood fully the nature of the measure, he might readily have found the queen on the ground at her first attempt to join the swarm, and he would then have been able to prevent the loss of both.—Ed.

NOTICES TO CORRESPONDENTS & INQUIRERS.

Cockforten.—The continued presence of flies at the hive entrances is very suspicious, and indicates foulness within. Your best plan will be to drive out all the bees, and thoroughly examine the comb; there is probably foul brood within them, or fermentation of the honey. In either case the odour would give information; and should our suspicions prove correct, it will be better to sacrifice both lots of comb—bury them deeply—and put the united bees into quarantine for a few days, when they may be added to others, or a set of combs may be given to them.

G. H.—It is said that as soon as the internal temperature of a hive rises to 100° Fahrenheit the bees cease working, and many of them cluster idly on the outside.

G. E. C., *Ludlow*.—The *débris* received is undoubtedly that of the Mason bee, and, curiously enough, we have had a similar experience. A hive devoid of bees had been standing in the open during the spring, and in each corner, by the side of the moveable dummies, one or more masons had been at work. Their cells were made of mud and were of irregular shape, each containing a larva in a different stage of development, and more or less pollen (the fine powder mentioned). The number of cells in each corner were respectively 11, 13, 16, and 17. One of the dummy-boards was lifted out without damaging the cells, so that a full view of their interior was obtained.

*** In consequence of great pressure, and notwithstanding the addition of four supplementary pages to this number of *Journal*, our article on the 'Mysteries of the Bee-hive' is unavoidably crowded out. We trust that in our next number we shall be able to insert several articles which we have now in type.

Covers for Binding the British Bee Journal, *may be had, price* 1*s. at the Office, Hanwell, W.*

OUR WANT AND SALE COLUMN.

WANTS may be advertised at 2*d.* per line of eight words, for one insertion, renewable in succeeding months, for 3 months, without alteration, for half price. Replies must contain stamped directed envelope, or they will not be forwarded.

All monies must be deposited with the Editor, who will communicate with the vendor, when, if a sale be effected, one penny in the shilling will be charged on all amounts not exceeding one pound, and one halfpenny additional will be charged on every shilling beyond that amount, and the balance forwarded to the vendor.

Should no sale take place, the money deposited will be returned to the depositor, less a uniform charge of fourpence to cover postage.

The carriage of all articles sent, except such charges as are incurred in first placing them on a railway, must be paid for by the depositor, and if not equal to the description given, the advertiser must pay the cost of their return.

The postage of small articles, such as books, must be pre-paid by the sender. The name of the town or country in which advertisers reside, and the name of their railway, should be mentioned as a guide to probable cost of carriage.

No advertisement must contain more than sixteen words. P. O. Orders to be made payable to C. N. ABBOTT, office of *British Bee Journal*, Hanwell, W., London.

No.

230 One Huber Leaf Hive, good as new, 21*s.*

236 Home-made Hive, Quinby frames, two division boards, collateral principle, super cover and floor-board, 15*s.* 6*d.*

237 Walton's Extractor, in frame, &c. takes frames 13 by 18. Photo forwarded, 2*l.* 15*s.*

250 Pure heather and clover Honey (cold drained) 2*s.* per lb. in small tins, package free.

261 Bee Boxes, of japanned tin, ventilated (been used), for carrying fumigated or driven bees from condemned stocks. London. 2*s.* each.

271 150 lbs. of pure run Honey, in tins containing 25 lbs. each. 3*s.* each charged for the tins, and the same allowed when returned.

275 Starling's 5*l.* Honey Extractor, almost new, 4*l.*

280 One 10-bar Hive, double-walled, wide-shouldered, bottomless frames; reversible floor-board, four legs, handsome super cover and roof. Very cheap, 1*l.* 10*s.*

281 24 Vols. of 'Journal of Horticulture,' minus 9½ numbers and 4 Indices, containing the valuable Bee experiences of the late Mr. Woodbury. 1*l.* 10*s.*

282 For Sale.—A number of Straw, Super, and Stock Hives, not new but in healthy condition, also Bee-books, &c. Might exchange part for book offers. Salisbury.

284 Two Cheshire twin-frame Nucleus hives, double cased and painted, not been used. Lee's make, 12*s.* 6*d.* each.

286 Three Stocks Hybrids in Woodbury hives. Near Leamington. 1*l.* 15*s.* each.

287 Excellent copy of Nutt's Collateral Hive, made by a first-class joiner. Carlisle. 1*l.*

292 'Management of Bees,' by Samuel Bagster, numerous illustrations; also, 'Practical Bee-keeping.' The two books, post-free, only 4*s.* 6*d.*

293 'Practical Directions for Management of Bees to Best Advantage,' by John Keys; also, 'Bees, their Habits and Treatment.' The two, post free, 5*s.* 6*d.*

294 Nos. 1, 2, 3, 4, 8, 10, 17, of *British Bee Journal*. 1*s.* each.

295 'The Management of Bees,' by Samuel Bagster, 2nd edition. 240 pages. 40 engravings. 5*s*

296 'The Cottager's Manual,' by Huish. 104 pages. 2*s.* 6*d.*

297 'The American Bee-keeper's Manual,' by J. B. Miner. 350 pages and 35 engravings. 5*s.* 6*d.*

298 Thorley's 'Enquiry into the Nature, Order, and Government of Bees.' 2nd edition, 1765. 158 pp. 4*s.* 6*d.*

300 'A Complete Guide to the Mystery and Management of Bees,' by Rev. William White. 1771. 94 pages. 4*s.* 6*d.*

WANT AND SALE COLUMN—CONTINUED.

No.

301 Adair's 'Annals of Bee Culture,' 1870. 62 pp. 3*s.* 6*d.*

302 Adair's 'Progressive Bee Culture,' 1872. 24 pp. 2*s.*

304 A new Carr-Stewarton Hive, with 3 boxes, crown board, and floor board. Manchester. 1*l.* 15*s.*

314 Sherrington Hive, new last year, filled with comb. Without cover. 18*s.*

315 Sherrington Honey Extractor. New, 1*l.* 5*s.*

316 Neighbour's Cottage Frame Hive. New, 5*s.*

318 *British Bee Journal*, Nos. 1, 2, 3, 4, 8, 9, 10, 12, at 1*s.* each.

326 'The Bee-keeper's Magazine.' Vol. I., Nos 1, 4. 5. Vol. II., Nos. 3, 9, 10. Vol. III., Nos. 1, 2, 7. 1*s.* each, or 9 Numbers for 6*s.*

327 'The National Bee Journal.' Vol. IV., Nos. 8, 11, 12. Vol. V., No. 1. 1*s.* each, or 4 Numbers for 3*s.*

328 'Novice's Gleanings.' Vol. I., Nos. 1, 2, 3. Three Numbers for 2*s.*

330 Swiss Bar-frame Hive. Painted, 8*s.*

331 Six Rye Straw Hives, workmanship guaranteed, cane-worked, locked stitch, turned wood feeding hole, rim top and bottom. 8½ × 16. Price 18*s* Berks.

332 Wanted.—'Langstroth's Book on Bees.' Exchange given. Berks.

334 Dry Puff-ball, post free, per packet 1*s.*, of F. S. Clutten, Fressingfield, Suffolk.

335 'Journal of Horticulture,' in good preservation, April 2nd, 1874, to September 23rd, 1875, inclusive, 10*s.*

336 Wanted.—Nos. 5 and 6 of *British Bee Journal*, 1*s.* each offered.

338 For Sale.—A large number of frames of pure sealed honey-comb, invaluable for giving to new swarms, price 1*s.* 6*d.* per lb. Yorkshire.

339 Skeps filled with comb, dark, but healthy, 5*s.* each.

343 One Carr-Stewarton Body Box-stand, 3 octagonal supers, and wooden cover, 25*s.*

344 One Neighbour's Improved Cottage Hive, 3 glass-stands and zinc cover, used one season, 30*s.*

345 One Woodbury Hive, complete, used one season, well painted, 18*s.*

346 One Carr-Stewarton Body Box, 8*s.* 6*d.* not been used.

347 One Proctor's Patent Safety Hive, filled with healthy comb, all complete with cover and roof, 25*s.*

348 Plain Wax-sheet, per lb. 4*s.* post free.

351 Two Abbott's Cottagers' Hives, filled with combs, quite healthy, 25*s.*

352 Straw Woodbury Hive, with comb and improved top, 15*s.*

367 *British Bee Journal*. Vol. I. 20*s.*

368 Apiary, complete Bee-house, with 40 wooden frame Hives, about 300 lbs. sealed Honey in frames, and about 400 frames with good comb, a closet to hang 600 frames; 30 straw and wooden Hives, with other Bee-furniture, as Hives for Queen raising, &c. Price 40*l.* complete. J. G. Kirsten, Bridlington, Yorks.

369 Vol. III. *British Bee Journal* (unbound), 6*s.*

370 'Bee-keeping,' by the *Times* Bee-master, 2*s.* 9*d.*

371 Seven zinc Bee-feeders, mahogany floats. Ireland. 1*s.* each.

372 Woodbury Bar Hive, dovetailed, 1-in. thick, 10 frames, 2 windows, with hinged covers and floor-board; also well painted cover, with porch riser for super, and ventilated top with acorn knob. Ireland. 25*s.*

374 Wanted.—Stocks or swarms of English Bees. Address G. Wear, Arslaby, Whitby.

375 Finest Heather Honey, in comb or in tins. Apply to A. J. Anderson, Tullochleys Clatt, Aberdeen.

CRYSTAL PALACE SHOW.—Two First Prizes, and Two Silver Medals were awarded to C. N. ABBOTT, Editor of the *British Bee Journal*, for best BAR-FRAME HIVES in both Classes.

The Illustrated Catalogue is now ready. Please send stamped ADDRESSED envelope to Editor *British Bee Journal*, Hanwell, W., London.

THE NEEDLE FEEDER. Easily applied to every description of Hive; a hole too small for a Bee to pass being all that is required. Two for 2*s.*, by post. G. F. PERKINS, Hill Wootton, Warwick.

THE

British Bee Journal,

AND BEE-KEEPER'S ADVISER.

[No. 41. Vol. IV.] SEPTEMBER, 1876. [Published Monthly.]

Editorial, Notices, &c.

SEPTEMBER.

With this month will close a finer honey season than has ever been recorded in the annals of apiculture. During the past month, and indeed through the greater part of July, our fields and pastures have literally flowed with honey, and so great is the yield, that already the cry is echoing far and wide, 'What shall we do with it?' In carefully-managed apiaries the crop has been simply astounding, the extractor playing no mean part in preventing loss of time and labour to the bees, and consequently aiding in the production of the coveted nectar. The season, though it opened badly, and sorely tested the patience of bee-keepers generally, has afforded a splendid series of examples of the inestimable value of the improved method of humane bee culture, and at the finish will exemplify more than ever the immense superiority of the moveable comb system over all others. We are already besieged with letters complaining that the combs in bar-frame hives are completely filled with honey to the entire exclusion of breeding, and in all cases have advised that the extractor should be freely used to give opportunity for the production of young bees, without a good supply of which no hive can pass through the coming winter and ensuing spring successfully. And if this difficulty, observable and easily overcome be it remembered, exists in bar-frame hives, it is not difficult to imagine the predicament in which hives with fixed combs are placed, straw skeps to wit.

From actual experience in the preparation of small swarms wherewith to Ligurianise other's stocks, as recommended in *Leaflets for the Million*, No. 3, we have found that to obtain a sufficiency of bees it has been necessary to take the whole populations of straw skeps, and even then the swarms would not exceed 1½ lbs. in weight; and believing these to offer a fair criterion of the condition of skeps generally, we feel fully warranted in concluding that the majority of such hives are in a precarious condition for wintering.

It is easy, as some writers say, to cut out some of the combs, and force the bees to build anew, but as the new comb will almost invariably be drone comb in which to store the late ingathering from the heather, the remedy will be as bad as the disease, since, instead of encouraging autumn breeding, it will rather be a costly means of preventing it in the spring. The remedy with stocks in skeps is to transfer them as described in our leaflet on that subject, extracting the honey from the combs, and fitting them with whatever brood there may be, into bar-frame hives. With over-full stocks, in moveable-comb hives, the remedy is obvious: the honey should be extracted, and, if possible, the stocks should be sent to the heather; but where such late pasture is not available, gentle continuous feeding should be proceeded with at once, to cause the bees to promote breeding.

MYSTERIES OF THE BEE-HIVE.

(*Continued from page* 41.)

Having shown how bees in a thriving hive prepare for a royal successor when swarming has been determined on, we now proceed to show what actually takes place at swarming time. As before stated, the signal for the commencement of royal cells in which to cradle and nurse the young princesses is not understood by humans, and until the introduction of moveable comb hives the whole business was a mystery. Now, however, what goes on at this most interesting crisis may be as easily watched (in observation hives for instance) as the growth of a young oak may be from an acorn which has been suspended in a phial of water—watched, we say, and the result counted upon by the experienced with (almost) certainty; but not even the most astute can explain why the acorn becomes an oak, or account for the phenomenal change which the bees effect in their transformation of worker larvæ into queens. In our *Journal* for July the way in which queen-cells are formed was fully explained; and it was shown that their production caused the queen, the mother of the whole population, to become greatly excited at what would appear to be the ingratitude of her offspring in raising up rivals

to push her from her throne and dignity. This excitement usually lasts about five or six days, or until the queen-cells have been sealed, when, weather permitting, the bees simultaneously determine, as it were, to emigrate. During the raising of the queen-cells, and often in small hives, for many days before they are commenced, the bees hang in clusters at the hive's entrance, and this is often accepted as indicative of their presently swarming; but it is not a good criterion, for often, though there may be a fair show of bees at the doorway, the breeding within is so hindered by their being an excess of honey or pollen in the hive that they cannot increase in sufficient numbers to warrant the exodus, and the bee-keeper is often disappointed and vexed because his bees 'are idle and will not swarm.' Now from what we have observed in *large* hives, we are by no means certain that a term of idleness prior to swarming is not perfectly natural and right. Who with large hives surmounted with supers has not often been grieved to see the bees of certain stocks idly lounging within them, clustering perhaps as they do outside the hive, but doing no manner of work, although the fields and orchards offer the most tempting viands for their refection? The question then is, 'Some of my bees will not work, while others are doing wonders; why is this?' The *natural* and correct answer would be, that they are *preparing to swarm*, but the ready inference is, that the hive, or something within it, is not right, that the queen is old or absent, or some other reason is suggested which is equally wide of the mark, and suddenly the bees pour forth as a swarm.

We have, as before hinted, a strong belief that there is great wisdom in the temporary idling of stocks prior to swarming, as it permits the accumulation of a large number of bees that are not already exhausted by labour. It is well known that during the full tide of ingathering and breeding, the life of bees is of not more than six weeks' duration; and when it is considered that the first work of a swarm (comb-building) is of a most exhaustive nature, and that for three weeks at least there can be no addition to their numbers,* the necessity for a careful husbanding of their vital power will appear evident.

The cause of swarming is a problem which has puzzled the minds of investigators during many ages, and at the present day is a matter of speculation; but we have little doubt that the first suggestion of it to the bees arises from their hive or nest becoming over-heated. Excessive heat in a hive may be brought about by its being too much exposed to the sun's rays, by the overcrowding of the bees, by a sudden glut of honey, causing great excitement in the hive, or by the general heat of the weather; but we avow our conviction that heat is the exciting cause of preparation, and a continuance of it, with a fair amount of honey coming in while the days are lengthening, will surely cause a healthy colony to swarm.

First swarms, when headed by mature queens, usually come forth during the mid-day hours; but when from any cause the mother-queen has been lost, and young princesses have been reared, they, like casts, are subject to no rule as regards the time of their issuing, but may come forth at any hour of the day or during any condition of weather. When a normal first swarm is about to issue, the bees, as a provision for their journey, and to enable them to commence comb-building in their future domicile, take the precaution of filling their honey-sacs with honey from the cells in their parent hive; but as this, as a rule, is nearly filled with brood in various stages of development, there are usually very few open cells from which so large a number can help themselves, only one bee at a time being able to dip into a cell, and, therefore, the loading takes a long time, and as the bees as they load themselves cluster outside or lounge within the hive waiting for the signal to start, very little of the usual work of ingathering takes place; and this has been so often noticed, that a morning fit of seeming idleness in a stock usually 'alert and gay' is looked upon as indicative of immediate swarming.

While the gorging is progressing, a few over-anxious bees will play about in front of the hive, dancing in the air, and others may be seen running in and out as if to be assured that 'all's well;' and as the climax approaches, the number of dancers rapidly increases, and the once gentle hum becomes almost a roar as in thousands they invite their friends to emigrate. And presently a sudden impulse appears to seize the colony, and forth they come in a stream, each rising on the wing as soon as it is clear of the hive-entrance, and in in a few minutes the air is full of bees, darting in all directions so quickly, that each seems to leave a trail behind, filling one with amazement that they do not come into collision with, and injure each other.

Now from the time the queen-cells were commenced, the poor mother-queen has had little comfort in the hive; her jealousy of the rivals being reared, and the mutinous conduct of her children, have well-nigh driven her to desperation, but the moment the *rush* begins, her guards give her liberty; but as the queen-

* There can naturally be no addition to the numbers composing a swarm during a space of three weeks, because after the comb has been built, and the eggs have been deposited, twenty-one days will elapse before they become perfect insects.

cells are still kept guarded so that she cannot injure them, she, as if disgusted, joins the throng of emigrants and goes forth with them.

It is by many believed that the queen *leads off the swarm*, and that after a dance in the air, she alights on a bough, and that then the bees gather round about her and form the cluster. But this is not in accordance with fact. The *bees* of a prime swarm first begin to leave the hive, and when about half, or perhaps two-thirds of them, are on the wing, her majesty may be seen waddling out of the entrance and taking wing if possible.

It often, however, happens, that through the ill-treatment to which the queen has been subjected, her wings become torn and ragged,* and consequently, when endeavouring to fly from the alighting-board to join the swarm, she, instead, falls headlong to the ground and is temporarily lost. In the meantime the bees will cluster on a tree or shrub, apparently in the hope that she will join them, and the fact of their so doing without her being present, sets at rest the question of *her leadership*, and tends to prove that their first clustering is more of an invitation to the queen to come to them, than the result of any determination on her part as to the place of alighting.

A very few minutes, however, determines her presence or otherwise with the swarm, and when her absence is discovered, the bees disperse and search for her, spreading themselves over a large tract in the air, while she—poor specimen of fallen greatness!—is crawling on the ground, attended by a few workers, that, equally unfortunate through their youth or their age, have been unable to take wing. The swarm not finding her, return *per force* to their hive where, being gorged, and it being impossible for them to redeposit the honey more rapidly than they absorbed it, they, to prevent the generation of too much heat within, usually cluster outside the hive, and while in this position, to their infinite delight, the queen, attracted either by their hum or their odour, often rejoins them, when the farce, for that it is, is repeated. This may occur again and again until the queen gets snapped up by a bird or a toad, or until one of the princesses comes forth, when she, being young and skittish, sometimes *leads* the swarm clean away.†

We will, however, suppose that the swarm has alighted, and that the queen has joined them, a fact which may be quickly ascertained by their settling into a compact cluster, when we would advise that they be immediately hived, or, scouts having been sent out to look for a fitting place of abode, the whole may take wing and go to it, and so the swarm may be lost to its owner.*

We are now at liberty to suppose that the swarm is comfortably hived in an acceptable apartment, and that the bees have prepared for comb-building and the establishment of a new colony, but must reluctantly defer the description of their *modus operandi* until next month's issue.

THE LIGURIANS AND THE DONKEY.

On Tuesday, August 1st last, a most extraordinary blunder was committed at the Vicarage, Abingdon, in Berkshire, by which a poor donkey lost his life. The *facts* of the case can be told in a few words. In front of two hives of Ligurians a patch of lucerne had been grown, that the bees might have a honey treat when it was in flower, and the donkey the reversion of it when they had exhausted its sweetness. Knowing this, but not understanding that the lucerne should have been cut and taken to the donkey, the gardener thoughtlessly tethered him that he might graze upon it, and prevent the use of the scythe. The tether was, however, sufficiently long to enable the unfortunate animal to reach the hives, and it is evident that somehow he gave offence to one of the stocks of bees, and having received a sting or two, the rest may be imagined. His kicking and plunging would but irritate the bees the more, and being unable to escape, he would have to bear the full brunt of their indignation, and—not to dwell on the painful scene—he was found standing perfectly still and literally covered with bees, and in a few moments the poor beast fell down, dead.

Let us add that one of the stocks took no part in the fray; that both had very large sup-

* The raggedness of the queen's wings must not always be attributed to ill-usage by the bees, as in the act of egg-laying they are liable to considerable injury, the abdomen only being thrust *into* the cells, while the wings at each insertion come into contact with their upper edges and get worn.

† The difference between the conduct of the bees towards young princesses and mature queens is most remarkable. They seem to be so proud of the former, that they will allow themselves to be *led* anywhere by them; and often when several issue at the same time, they break up into as many small swarms, which unite and separate repeatedly, and throw an apiary into great confusion. Young queens often *lead* swarms, but old ones only go with them.

* That bees *do* send out scouts is beyond the shadow of a doubt, and that sometimes for days before swarming they busy themselves in preparing their intended residence is also well established: but generally when they have been comfortably hived and protected from the sun's direct rays they remain, occasionally, however, they desert and go straight to their chosen abode. Skilful bee-masters, to prevent the trouble this imposes, clip the queen's wing, and while the swarm is *out* pick her off the ground, and, putting her into a new hive, place it in the stead of the old stock, when the bees returning find her there and adopt the new hive as their own.

plies of honey—one having, in addition to the large store in its hive, a super on top containing 36 lbs. of honey, and the other equally well off in the stock-hive, having a super of 6 lbs. upon it; further, that the stock which killed the donkey had not been deprived of a single drop of their honey, and who shall account for the highly-spiced, sensational paragraph, which appeared on the 5th ult. in the *Abingdon and Reading Herald*, as follows?—

'Caution to Bee-keepers.—A strange event happened on Tuesday morning at the Vicarage. A poor donkey had been tied to a tree within a short distance of some hives. The bees in these hives had very lately been deprived of their stores, according to modern methods of bee-keeping, and whether this had enraged the bees or whether they were actually starving, it is a fact that they set upon the unfortunate animal and literally stung it to death. They also seemed much inclined to attack passers-by in the road. One gentleman, we understand, had much difficulty in getting free from them, and one or two horses were followed in a savage manner. The character of these insects seemed to be completely changed, and most dangerous consequences may ensue if they take to attacking animals and human beings in this unlooked-for way. To rifle the hard-earned fruit of their labours without giving them an equivalent in the way of food, is very likely to make them change from harmless to ferocious insects, and who can blame them? We hear that they did much damage, and caused much annoyance last year, after they had in the same way been robbed of their stores.'

Similar statements have appeared in nearly all the newspapers in the kingdom, causing a perfect howl of delight from the bosoms of the old smotheration school; one paper, notably, the *Daily News*, going so far as to recommend a return to the brimstone pit, as the best method of taking honey and preventing accidents with bees.

Can anything be more absurd? On the strength of a report by an itinerant penny-a-liner, one of the powers of the age—a paper remarkable for its general correctness—allows one of its staff—who knows nothing of his subject—to deal out, right and left, assertions which, if correct, stultify some of the most profound thinkers the world has ever produced, and render all the improvements which have taken place in the science we advocate, delusive and mischievous.

Editors must in a measure rely on their contributors for information, but they need not allow every 'cad' who can spoil paper to vent his opinions through their media, and thus give life, temporary though it be, to reports as malicious as they are false, more especially when they may damage individual reputation and materially injure so good a cause as that implied in the word Apiculture.

It is, however, but justice to the Editor of the *Abingdon Herald* to say that, as soon as he was made acquainted with the facts of the painful case, he took the earliest possible opportunity of contradicting the falsehoods contained in the report, and in the hope that the leading papers which have spread the libel may be equally generous, we here append his retractation:—

'The Bees at the Vicarage.—We beg to direct the attention of our readers to a letter from our worthy Vicar, which appears elsewhere, in contradiction of statements contained in a paragraph inserted in last week's *Herald*. The paragraph relates how a swarm of bees set upon an unfortunate donkey and literally stung it to death, while tethered to a tree in close proximity to the hives in the Vicarage grounds. In recording this sad, but interesting fact, our correspondent made statements to the effect that the bees in these hives had been lately deprived of their stores without being provided with an equivalent in the way of food, which we have since ascertained to be utterly untrue.

'We understand that the Vicar is extremely annoyed by these misstatements, because he thinks the inference is that he had left the bees unfed and starving, and so caused the death of the poor donkey. We scarcely believe it possible for such an inference to be drawn by any one who has the privilege of knowing his humane character. Nevertheless, we avail ourselves of the first opportunity to publicly apologise for the great annoyance we have most unwittingly caused our esteemed Vicar, and to express a hope that the publication of the misstatements—which at the time we had no reason to question—will inflict no injury on the cause of humane bee-keeping. Such an expression is called forth from the fact that the *Daily News*, drawing its inspiration from a precisely similar paragraph in London papers (neither directly nor indirectly supplied by us), has published a leading article advocating a return to the old-fashioned and cruel practice of destroying the bees on gathering their honey.

'Editors of newspapers alone seem to understand how utterly impossible it is to verify in detail every one of the numerous communications furnished by correspondents; and though we adopt every reasonable precaution to guard against being led into error or misstatements, we are, of course, not always successful. At the same time we are *always* ready and *anxious*, as in the present case, to *at once* make the *amende honorable*, by publishing a refutation of any misstatements and correcting them in the most prominent manner.'

This, we think, will satisfy every one who reads it of the untruthfulness of the greater part of the report, and of the absurdity of the inferences drawn in favour of sulphuricide and against the improved methods of bee-culture.

It is singular that while on one page the *Times* permitted the onslaught of the peripatetic vendor of lies condemning the advanced system of bee-keeping (now becoming common), on another it records the wonderful success of one of its disciples, under the heading of—

'The Honey Harvest.—"J. P. J." it states, 'writes to us from Bull's Mill, Hertford:—"It may interest your bee-keeping readers to hear what a good year for honey we are having in these parts. I began here in the spring with six stocks of black bees, in large frame-hives, and the hives are all now perfectly full of honey and brood (about 50 lbs. each of honey I should think). Four of them have each given me a super of 45 to 50 lbs. of pure golden comb honey, and are still working hard at ingathering, and a fifth threw a swarm which, besides filling the large skep it was (in my absence) put into, has stored 4 lbs. to 5 lbs. in a cap at top. I believe the sixth gave a swarm which was lost. The value of honey from these six hives will probably be 15*l.* to 20*l.* (of course,

leaving the bees plenty for winter use). I may add that, with the exception of a little stimulative feeding in the early spring and putting the supers on, the bees have had no attention whatever."'

Can any one imagine a greater stultification?

THE COMING EXHIBITION AT THE ALEXANDRA PALACE.

We are glad to be able to report that the prospects of this, the third Annual Exhibition of the British Bee-keepers' Association are highly satisfactory; and if the exhibits are in the usual proportion to the registrations, the Show will be a grand one, especially as the season has been so excellent for honey-gathering. The manufacturers of hives and bee-furniture will be in full force as usual, and there will be no lack of 'inventions.'

The exhibition of manipulation with live bees has this year been undertaken by Messrs. Hunter and Cheshire, and will doubtless be as attractive as ever. The honey-fair department will have special attention, and if vendors will but be moderate in their demands, there will probably be effective sales; but if, on the other hand, high prices are charged, less business will be done. We have always looked upon the establishment of a honey market as of the greatest importance to apiculture, and, although no *great* success has yet attended the efforts that have been made, experience has been gained, which will be turned to good account. At the last Crystal Palace Show the price governed the sale. Honey is, by the majority of persons, looked upon as a luxury, only to be eaten on high-days and holidays, but in many places, public as well as private, it takes the place of the abomination called butter, the Central London District Schools at Hanwell alone consuming between three hundred and four hundred pounds per week.

The low price of foreign honey is, however, the great drawback to the sale of the produce of British apiculture. The public buy the stuff in fancy bottles or jars for little more than the value of the latter, and fancy they have HONEY; when, in reality, they do not know what the delicious nectar is, and not until it is offered at prices which will bring it home to them will they be able to appreciate its value either as food or medicine. 'A rose by any other name will smell as sweet,' and sugar, though called honey, will be sugar still, though sold in fancy jars at 1*s.* per pound.

We feel that the Association must give this question their earnest consideration, and trust that arrangements will shortly be made to bring about the desirable consummation.

Registrations may be made up to the 5th, and entries up to the 8th, of the present month.

'THE BEES.'

A Poem by John Evans, M.D., Eddowes, Shrewsbury.

We have great pleasure in announcing that we have succeeded in obtaining Dr. Evans's delightful poem with the above title, with the intention of republishing it in the *British Bee Journal*. The Doctor complains in his preface of the neglect of bees by the British muses, and says, 'While the bees of other nations have been able to boast their zealous and patient investigations in Maraldi, Swammerdam, Reaumur, and Huber, and a poetical panegyrist in the elegant Vanière; yet in this birth-place of free enquiry, and of the immortal Bacon, scarce one scientific work has been devoted to the service of these valuable insects. Nor, except perchance "to point a moral or adorn a tale," hath the British Muse deigned to present one garland at their shrine.' And this shall be our apology for reproducing the Doctor's elegant work in our pages.

ROBBING BEES, AND WASPS.

We cannot too strongly caution our readers against the carelessness which induces the strong stocks in an apiary to assail those that are weaker, often causing their destruction. Queenless stocks are peculiarly liable to these attacks, and when once a raid has been made upon them, there is little hope for them except by their removal. The activity usual in front of a hive while the thieves are ransacking it is often mistaken healthful vigour, and presently, when the robbers have taken all the honey, and the wasps are rifling the brood-cells of the grubs to feed their own young, it will suddenly be discovered, as we have over and over again been told, that 'the wasps attacked the colony and destroyed it.' Wasps are sneaking, cowardly thieves, and never attack hives, in the true sense of the word, nor will they attack individual bees except the latter have been previously injured, and then they show them no mercy.

As a prevention all weak hives should have their entrances contracted, and it will be found useful to place a piece of zinc with large ($\frac{5}{24}$) perforations over the entrances as the bees within will be much better able to repel the intruders, which will not be able to use their wings as aids to motion until they are almost through the zinc.

Great care should be taken to prevent the spilling of syrup near a hive, and while feeding is going on it ought to be impossible for brigand bees to scent out and discover the food. An Australian meat-tin will make an excellent protector for a small bottle, while for a large one a flower-pot or earthen pan will answer well.

When two hives are fighting, it will assist the weaker if the stronger be assailed at home. Turning the assailants' hive completely round, so that its entrance shall be 'at the back door,' will completely baffle the marauding bees; as, on their return home with their plunder, they will miss their usual mode of ingress to their home, and, being laden, will not find it in a hurry, more particularly if its entrance (at the back) be made to smell of carbolic acid. Exchanging the positions of two fighting colonies will often put a stop to hostilities.

An Aston's bee-trap placed against the entrance of an attacked hive will stop the fighting, as it will allow the robbers inside to get out, and will prevent outsiders from getting in; but when applied top ventilation should be allowed, or the bees inside might be forced to turn out or be suffocated. At dusk of course the bee-trap should be removed to permit the inhabitants left outside to enter.

The best security against fighting and robbery is to have all strong stocks.

WESTON-SUPER-MARE BEE AND HONEY SHOW.

'The first Exhibition of the West of England Apiarian Society was, by the kind permission of the Lord of the Manor and his trustees, and by an arrangement with the Flower Show Committee, held at the Grove on Tuesday and Wednesday, the floral *fête* days. The Society, which owes its existence mainly to the exertions of Mr. O. Poole, of Uphill, who has had great experience in bee-keeping, and has aided the cause of bee-culture by practical work as well as by his pen, was formed with the view of rendering bee-keeping more popular by instructing cottagers and others how to keep bees to the greatest advantage, and on humane principles. The subject is one which should commend itself especially to country gentlemen and clergy, who would confer a great boon upon their poorer brethren, as well as do great good to society at large, by disseminating information concerning the habits and treatment of bees, and showing how they may be kept so as to be a source, not simply of pleasure, but of profit. Public thanks are due to Mr. Poole, and the gentlemen who co-operated with him, for holding the first Bee and Honey Show in the West of England at Weston-super-Mare, and for making so laudable an attempt to popularize bee-culture in this district. The movement has our hearty good wishes for its success; and though we lack the enthusiasm and practical experience in the subject of such men as Mr. Abbott, the Editor of the *Bee Journal*, and Mr. O. Poole, we shall rejoice to hear that the Society is able to hold a similar exhibition annually, visiting in rotation the large centres in the West. By this means, we have no doubt, much would be accomplished towards rendering bee-keeping more general, and, by increasing our knowledge of the habits of the industrious little insect, the sense of fear with which it is regarded will be dispelled, and people will learn to look upon it as an indispensable adjunct to a garden. The Show, though small, was in every way creditable, and certainly very interesting. Here the visitor was enabled, by well-coloured plates, to study the anatomy of the bee, to pass from the model to the life, and in the hives of observation to see the little insects at work, watch their various movements, and mark their loyalty and deference to the queen-mother. Then there were to be seen the fruits of their labours in the scores of jars and supers of honey with which the tables were laden. Hives of various patterns, from the familiar straw skep to the most recent invention, were exhibited, as were numberless articles used in apiculture—such as bee-feeders and stages, honey extractors, &c. The principal contributors were Mr. C. N. Abbott, Editor of the *Bee Journal*; Mr. O. Poole; Mr. S. A. Sholl, of Congresbury; and Mr. Charles Lewis, of Taunton. The chief prize, 5*l.* 5*s.*, given by Mrs. Smyth Pigott, went to Mr. Cox, of Burrington, for three supers of honey weighing 46½ lbs. More than one competent judge dissented from the ruling of the judges, and held that the prize ought to have been given to Mr. Lewis, who staged two supers weighing 79 lbs. Mr. O. Poole took several prizes, and we were glad to see a third taken by a youthful bee-master, Frank Perrett, son of our fellow-townsman, Mr. W. E. Perrett. Mr. Sholl showed 43½ lbs. of honey, of fine quality, taken from a common stock-hive. The judges were Captain Hickley, R.N., of Ashcott; the Rev. Prebendary Warren, of Bawdrip; and, in classes in which they did not compete, Mr. Abbott and and Captain P. E. Martin. There were about 120 entries, and the following is the

'Prize List.

'*Honey.*—Largest and best harvest of honey in the comb from one stock of bees under any system or combination of systems—Prize of 5*l.* 5*s.*, offered by Mrs. Smyth Pigott:—1st, J. Cox, Burrington, three supers, 46½ lbs. For the best wood (or wood in combination with glass or straw) super of honey:—1st, 2*l.*, O. Poole, Uphill, frame super of honey, 37 lbs.; 2nd, 1*l.*, Charles Whitting, Uphill. The best straw super of honey, net contents above 15 lbs.:—2nd, 10*s.*, William Martin, West Wycombe, Bucks. The best straw, glass, or wood super of honey, net contents not under 20 lbs.:—2nd, O. Poole, Carr Stewarton body box of honey, 21½ lbs. The best glass super of honey:—1st, 1*l.*, J. Cox, 33 lbs.; 2nd, C. Lewis, Taunton, 21 lbs. The best exhibition of run or extracted honey in glasses, not to exceed 5 lbs. each:—1st, P. E. Martin, King's Somborne, Hants; 2nd, J. Cox. The best exhibition of honey in supers or sections of supers, each separable and singly, not more than 4 lbs. each:—1st, 1*l.*, William Martin; 2nd, 10*s.*, O. Poole; 3rd, 5*s.*, Frank Perrett, Weston-super-Mare. The largest and best exhibition of super honey in the comb, the property of one exhibitor, and gathered by his own bees (open to cottagers only):—1st, 2*l.*, William Martin, West Wycombe; 2nd, 1*l.*, W. Pavitt, Yeovil; 3rd, 15*s.*, H. Ellingham, New Heston, Middlesex. The best super of honey:—1st, 1*l.*, W. Martin; 2nd, 10*s.*, H. Ellingham; 3rd, 5*s.*, W. A. Pavitt. The best exhibition of run or extracted honey in glass jars:—1st, 1*l.*, William Martin; 2nd, 10*s.*, H. Ellingham.

Hives.—The best hives for observation purposes, all combs to be visible on both sides:—1*l.* and certificate, C. N. Abbott, Editor of the *Bee Journal*. For the best moveable comb hive (to include covering) for depriving purposes:—1*l.* and certificate, C. N. Abbot. For the most economical and complete hive on the moveable comb principle, adapted for the use of cottagers:—1*l.* and certificate, C. N. Abbott.

Miscellaneous.—For the best and largest collection of hives, bee furniture, bee gear, and apicultural necessities:—first class certificate, Charles Lewis, Taunton. For the best bee-feeder, the invention or adaptation of the exhibitor:—10*s.* and certificate, O. Poole, regulating feeding stage. The best and cheapest supers for general use in an apiary:—10*s.* and certificate, P. E. Martin. The cheapest, neatest, and best supers for producing honey-comb in a saleable form:—1st, C. N. Abbott. The best honey extractor: 1st, 2*l.* and certificate, C. N. Abbott. The best method of quieting bees during manipulation:—10*s.* and certificate, C. N. Abbott. The finest sample of pure bees'-wax, the produce of 1875 or 1876: 1st, 7*s.* 6*d.*, W. Martin.

'Both on Tuesday and Wednesday Mr. Abbott showed in the Grove Gardens how to quiet bees during manipulation, and how the honey may be taken and the comb transferred from one hive to another without the least danger to the manipulator, or injury to the bees, if we except the few who are apt to cloy themselves with their own sweets. These experiments were watched with keen

interest by numbers of visitors, and, as a bystander remarked, if they do nothing else, they will have done something to dissipate the foolish fear which many people have of bees. But we hope for more substantial results, and, if we wait patiently and work, we shall have them.'

The above is extracted from the *Weston-super-Mare Gazette*, but we cannot allow the report to appear in our *Journal* without recording the fact, that although during the manipulation the visitors might have availed themselves of the protection offered by a spacious vinery generonsly placed at the disposal of the Committee by the Lord of the Manor, scarcely any one took advantage of it, the public preferring to take their chance in the open, where they completely besieged the operators. There were during nearly the whole time on both days, literally, hundreds of ladies and gentlemen without the slightest protection to their hands or faces calmly viewing the open-driving and transferring of the respective stocks of bees, thousands of which were flying about, and during the whole show only one person (a small boy) was stung, by a bee which had crawled into his knickerbockers.

We were assured by many gentlemen that the show had effected a complete revolution in the public feeling with regard to bees; that although on the day before the show many would have *paid* to be allowed to remain away through fear of stings, yet having been induced to view the operations, had afterwards declared they would not have missed the sight for twenty pounds. When we say that during the operations scores of the visitors of both sexes played with handfuls of bees in ungloved, and often delicate hands with impunity (in most instances, perhaps, merely out of bravado), some idea may be formed of the familiarity which had been so quickly established with what had been dreaded so shortly before—a familiarity which did indeed breed contempt.—Ed. *B. B. J.*

STRATHBOGIE (ABERDEENSHIRE) BEE-KEEPERS' ASSOCIATION.

The first exhibition of bees, hives, and honey, under the auspices of the above Association, was held in the Town Hall buildings, Huntly, on 17th August.

The exhibition, considering the unfavourable season at which it was held, may be considered quite a success; the number of entries was not so great as would have been had the honey season been completed. The Committee thought it advisable to hold their first show in connexion with the Horticultural and Agricultural Exhibitions, so as to have a fair chance of public patronage.

Being the first show of the kind in this quarter, many were the rumours and speculations afloat regarding its advent; but, judging from appearances, and the interest manifested in the show room on Thursday, it is not likely to be the last Bee Show held in Aberdeenshire. Great praise is due to the honorary secretary, Mr. Downie, Huntly, whose exertions in no small degree contributed to the success arrived at. The judges were Mr. Smith, from the firm of Gordon and Smith, Union Street, Aberdeen, and Mr. Campbell, New Pitsligo.

The following is the Prize list:—

Class A.

No. 1.—For the largest and best display of honey-comb in hives—No entries.

No. 2.—For heaviest hives of honey-comb—Ditto.

No. 3.—For largest and best super of honey-comb.
1st Prize.—A. J. Anderson, Tullochlys, Clatt.
2nd „ —J. Shearer, Cairnie.
3rd „ —A. Downie, Huntly.

No. 4.—For super neatest filled, not less than 5 lbs.
1st and 2nd Prize.—A Reid, Boghead, Buckie.
3rd „ —J. Shearer, Cairnie.

No. 5.—For best glass super of honey-comb.
1st Prize.—A. Reid, Boghead, Buckie.
2nd „ —A. J. Anderson, Tullochlys, Clatt.
3rd „ —A. Downie, Gordon Street, Huntly.

No. 6.—For the best sample of run clover honey.
1st Prize.—A. Cockburn, Cairnie.
2nd „ —J. Shearer, Cairnie.
3rd „ —A. Reid, Cairnie.

No. 7.—For best sample of run heather honey.
No entries.

No. 8.—For best sample of wax.
1st Prize.—J. Anderson, Clatts.
2nd and 3rd „ —J. Shearer, Cairnie.

Class B.

No. 1.—For best straw made hive.
1st and 2nd Prize.—George Petrie, Huntly.
3rd „ —Wm. Souter, Auchindellan, Clatt.

No. 2.—For best bar-frame hive.
1st Prize.—A. Reid, Boghead, Buckie.
2nd „ —A. J. Anderson, Tullochlys, Clatt.

No. 3.—For cheapest and best honey extractor.
A. J. Anderson, Tullochlys, Clatt.

No. 4.—For collection of apicultural necessaries.
1st Prize.—A. J. Anderson, Tullochlys, Clatt.
2nd „ —A. Cockburn, Cairnie.

No. 5.—For best observatory hive of live bees.
1st Prize.—J. M. Campbell, Bonnykelly, Newdeer.
2nd „ —A. Reid, Buckie.
3rd „ —A. J. Anderson, Clatt.

Correspondence.

*** *These columns are open to Subscribers, so that their queries, replies, correspondence, and experiences, may be* fully *and* faithfully *recorded; and for the discussion of all theories and systems in Bee-culture, and of the relative merits of all hives and appurtenances, that the truth regarding them may be ascertained. The Editor, therefore, must not be expected to coincide with all the views expressed by the various writers. All Correspondence is addressed to the Editor.*

THE LAW ON BEES.

As regards the law of bees I may say that by one of the laws of Alfred the Great all bee-keepers were bound to ring a bell when their bees were swarming, to give notice to their neighbours of the fact, hence the origin of the tin-can music employed on such occasions. A swarm of bees is the *property* of its original owner so long as he can keep it *in sight*, afterwards it becomes the property of the first person who secures it. No man can swear to bees; with lost identification the property ceases and becomes in common—so more than one County Court Judge has decided.—J. B.

[In reply to our request for permission to publish the above, at the same time urging that where Ligurians are kept they ought to be as distinctly capable of identification as various breeds of fowls, &c. we received the following:]

You are quite at liberty to publish what I have said on the law of bees if you think proper. I repeat, no man can swear to bees, no matter whether they are Italians or English—and pigeons and fowls form no sort of analogy to either kind in law—identification is

strictly necessary, and must be proved on oath before both our civil and criminal courts. Having practised largely for now nearly thirty years as an advocate before the County Courts, I speak with some confidence, well knowing in what particular a suitor would fail in convincing a jury or a single judge that such things as bees were in fact his property, when there is nothing but the bees themselves to speak to. —J. B.

BEE LAW.

It may be taken generally that if a number of bees (call it a swarm if you like) fly from my hive and settle on premises belonging to another person, I have no property in them whilst they remain there. There is no legal difference in this respect between bees and wasps. If I have a right to follow a swarm of bees into my neighbour's garden I have an equal right to follow every bee into every field which it goes to.—Geo. F. Foxwell, *Great Hadham, Herts.*

[Note.—'When doctors differ,' &c.—Ed.]

BENNETT *v.* POINTON.

From the Wellington Journal and Shrewsbury News, July 22, 1876.

This was a claim for 3*l.* 15*s.* by Mr. Fryer Bennett, son of Mr. Bennett, organist, Shifnal, against Mr. Pointon, for a hive of Ligurian bees, which swarmed on the 30th of May last. Mr. Osborne appeared for plaintiff, and Mr. Pointon, of Birmingham, for defendant.

Mr. Fryer Bennett said he was an engineer, and lived at Shifnal. On the 30th of May he had a hive of bees at his house at the Grove. He was from home at the time, but he had expected them to swarm, and had a person to hive them. His father met him in the evening and told him they had swarmed. Being Ligurian bees imported from Switzerland, and swarming in May, they were valuable. He called at Mr. Pointon's house and saw Mr. Pointon. He told him his bees had swarmed, and that he believed he had them. He asked if he could swear to them. Plaintiff said he could if he saw them. He replied, 'Then you shall not see them,' and used abusive language, threatening to kick him off the premises. Plaintiff estimated the value of the bees at 3*l.* and his loss at 15*s.*

Cross-examined by Mr. Pointon—Bought the bees two summers ago, and gave 2*l.* 2*s.* for them. There were other bees in the neighbourhood, but not Ligurian. The bees produced were cross-bred Ligurian. There were several kinds of bees, including the common English and Ligurian, and the difference was pointed out to his Honour.

Thomas Duffet said he helped his father at the Grove, and was working near the bees. John Owen came to hive them on that day. He saw the bees come out of the hive, and he saw Owen hive them, and put them on a table under a tree. They then flew away, and he followed them, and saw them go into Pointon's garden. They were beating a tin at the time, and he called to them from off the wall, and told them they were Mr. Bennett's bees. Mr. Pointon's housekeeper heard him, and said they were all right. They were then going into the hive.

Witness was cross-examined by Mr. Pointon.

Mr. Owen, parish clerk, Shifnal, said he was instructed by Mr. Bennett on the day in question to hive his bees if they swarmed. He did hive them, and put them on to a table. Two hours after he was told they had gone away, and he went to Mr. Pointon's, where he saw some bees going into a hive. He kept bees himself, but not Ligurian bees. He did not know of any one else at present keeping Ligurian bees; they were more expensive than others. The distance from Mr. Bennett's garden to Mr. Pointon's was nearer 150 yards than 40. The boy might not have seen the bees all the way.

In reply to his Honour—The Italian bee was more like a wasp than an English bee.

Mr. Bennett, father of plaintiff, said he resided at the Grove, Shifnal, and remembered the 30th of May. He heard of the bees having gone, and in consequence went to Mr. Pointon's, and obtained permission to look at the bees, which were then going into a hive. Later in the day he saw Mr. Pointon, and told him about them. He said he would let his son have a swarm from them. Witness said his son would not agree to that. Defendant then said if there was any unpleasantness he would poison them, and witness said, 'Why, what harm have the bees done?' He had kept bees himself, and knew the difference between the Italian and English bees; the former were smaller, quicker on the wing, more vigorous, better workers, and made more honey. A swarm of bees in May was more valuable than another. There was an old adage,—

> 'A swarm of bees in May is worth a load of hay;
> A swarm in June is worth a silver spoon;
> A swarm in July is not worth a fly.'

Witness was cross-examined by Mr. Pointon at some length.

Frederick Duffet said he went to Mr. Pointon about the bees.

This was plaintiff's case, and

Mr. Pointon addressed the Court for the defence, and contended that the bees hived by defendant were in all probability the bees of plaintiff. Still they had shown a disposition to settle the matter by giving up the bees in order to avoid litigation and unpleasantness between neighbours, but he regretted to say that offer had not been accepted, although renewed as late as Monday last.

Mr. Osborne said he, too, had done all he could to settle the matter, and had been at considerable trouble, but he could not succeed with Mr. Pointon.

His Honour regretted much that the advocates had not succeeded in their efforts, and suggested that with his consent Mr. Osborne should then withdraw the case upon a reasonable offer being made by defendant to plaintiff. Upon a further suggestion defendant agreed to give up the hive and pay 25*s.*, and the case was withdrawn.

A COUPLE OF HOURS IN A GERMAN APIARY.

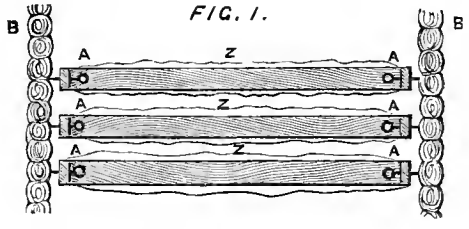
Having occasion to visit the small town of Fürstenwalde, situated on the river Spree, about 25 miles from Berlin, I learnt that a member of one of the German Apiarian Societies had established an apiary in a village at an easy walking distance from the town.

Taking a lively interest in bees and bee-management, I determined to seize the opportunity of making the acquaintance of a German bee-master; and accordingly, one scorching hot afternoon (the thermometer stood at over 85° Fahr. in the shade), I walked out to the village and introduced myself to the 'master' as a bee-loving Englishman. He was most kind and courteous, and after insisting on my sitting still, 'to cool myself,' after what, in German estimation, was a long walk, he conducted me to his apiary, most pleasantly situated beneath some fine old trees, which completely shaded the hives from the sun, and enabled the operator to manipulate them, at all hours of the day, without getting violently heated.

In the centre of a round space about twenty feet in diameter stood a square bee-house, from all four sides of which bees were issuing in large numbers. 'Do you find that, practically, it makes any difference which way the hives face?' I inquired. 'Not the slightest,' was the answer. Not far from this centre house stood the most remarkable thing in the whole apiary, namely, a skeleton hive, in which were twelve large bar-frames and a stock of bees, which were then, and had been, busily at work for weeks. I could hardly believe that they were not robber bees emptying some combs, until assured by the bee-master that they formed really a strong and healthy colony. They have been in their present position since very early in the spring, open on all sides and at top, and with no other protection from wind and drifting rain than a sloping board fixed about four inches from the top of the bars. I stood for several minutes watching them, hardly even then able to comprehend the fact that a colony of bees could exist, let alone prosper, with so little protection and so close to over forty other stocks, who, according to our English idea of bee-keeping, ought to have attacked and demolished them. 'Do they never rob each other?' I inquired of the bee-master. 'Never.' I shook my head in perplexity and passed on to one of the stands or houses. 'Do you find it most desirable to keep the bees warm in winter or cold?' I asked, seeing that his houses were for the most part lined with nearly six inches of dry moss, and that his hives had the same wedged in between them. 'I have practically proved that bees kept as you see these here eat considerably less during the winter, and are just as strong in the spring as those kept cold; in fact, I believe they cannot have too great a thickness of moss round them. In winter it keeps them warm, and in summer cool, but they have, of course, all got a ventilation aperture at top.' 'What about the entrances? Do you contract them at all or not?' 'On that point there is a diversity of opinion, but as far as my apiary is concerned, I never make any difference between spring, summer, autumn, or winter.' 'So,' I replied, and passed on to what, as the bee-master told me, were the newest and best hives in Germany. I must endeavour to describe them. The hive itself is about two feet long by about twelve or fourteen inches wide, has a round top, is made of straw and well painted, and contains sixteen bar-frames.

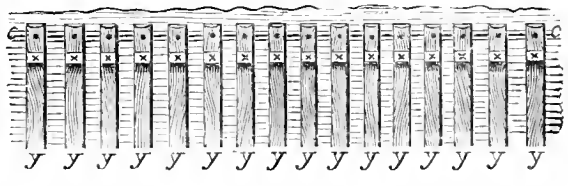
Its peculiarities are: Firstly, that it is manipulated from the bottom, the bar-frames being kept in their places by means of little iron pegs passing through a projecting end of the bar-frame into the side of the hive; a strip of wood, running the whole length of the hive, being grooved to receive these pegs. Holes being bored at regular intervals, into which, when the bar-frame is in its place, the peg falls, so as to maintain the proper distance between each comb, which, of course, the groove alone would not give. Fig. 1 shows three bar-frames in the hive, seen from the bottom; A, the pegs; B, B, the sides of the hive; Z, Z, Z, the bottom of the bar-frames. Fig 2 shows one side of the interior of the hive, C, C, being the strip of grooved wood, X, X, &c., the bottom strip of the bar-frames, Y, Y, &c., part of the sides of the same. Fig. 3 shows one of the bar-frames; at A, A, the two pegs are seen running through the projecting end of bar-frame, at E, E, two small pieces of wood are fixed on to those ends to facilitate the removal of the frame. Fig. 4 shows how the bar-frame is made. At D, D, etc., the lath is cut about half-way through

FIG. 1.



in ten or twelve places, and then soaked for a night in water; the following morning it will bend to the required shape without breaking. But it requires to

FIG. 2.



be fastened with a cross piece at top as well as bottom, the bar-frame being thus divided into two spaces. The second peculiarity of this hive is, that the bar-frames are deeper than they are long.

FIG. 3.

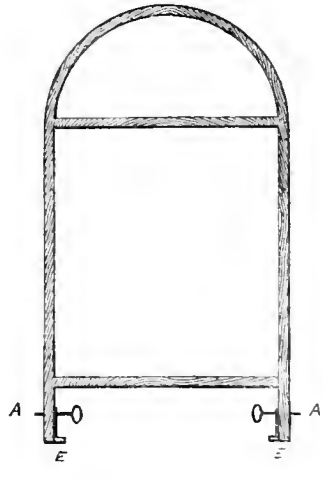
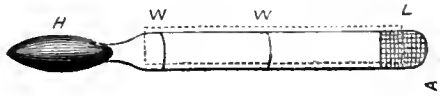


FIG. 4.

FIG. 5.

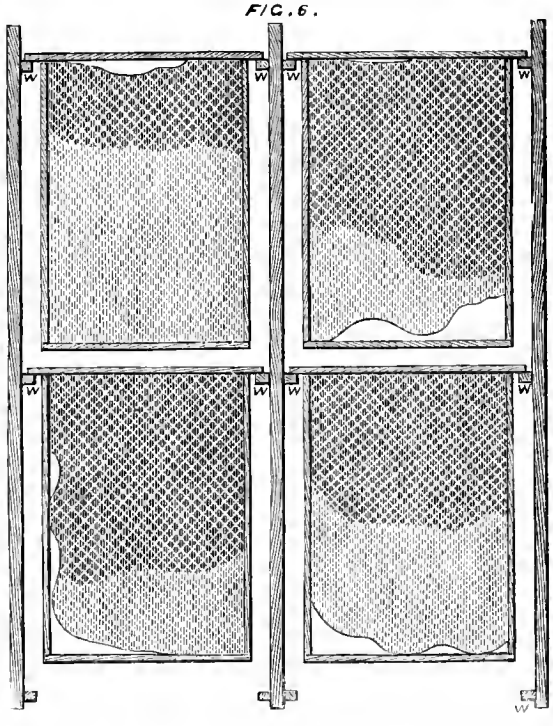


The bee-master asked me if I would like to see him manipulate one. Of course, I said I should

be delighted; whereupon he made me put on a small head-dress, with a glass let into it to enable the encased 'knight' to see better, and with a small hole near the mouth part, the use of which I will explain directly. After putting on a similar dress himself, he lit a piece of specially-prepared fumigating material about the thickness of a man's finger and somewhat longer, and put it into the frame shown in fig. 5. This frame consists of a trough of tin the required size; w, w, two wires across it to prevent the stick of fumigation from falling out; L is the opening in the bottom of the trough through which the smoke is blown, and H the handle. The bee-master now lighted the fumigator, and having passed a tube through the hole in the dress above mentioned into his mouth, blew some smoke into the hive for a few seconds. He next wheeled up a small cart, and lifting the hive from its floor-board, he placed it bottom upwards on the cart and removed it to an open shed close by. 'Nun!' said he, 'when I want to take out a bar-frame, I remove the pegs from it, as well as from the bar-frame next it on either side. I then push one slightly to the right, the other slightly to the left, and the frame in question may then be removed with the greatest ease and without any jarring, which is particularly to be avoided in all bee manipulations.' After showing me two or three bar-frames from different parts of the hive, he replaced the pegs and wheeled it back to its floor-board. The cart was of such a width that the hive just fitted between the two sides, which kept it steady, and the hive when in it was of the right height from the ground to enable the bee-master to operate without stooping; one of the sides terminated in a shelf, on which to lay the pegs, a knife, the fumigator, &c. 'Do you let your hives swarm naturally?' I asked. 'If they will do so sufficiently early; that is to say, that those which will swarm I let swarm, and those which won't I divide.' 'But do you not lose many? Do they not often settle on one of the trees where it would be difficult, if not impossible, to hive them?' 'Never,' he answered, 'for the simple reason that I always make them settle where I wish, often on my hand.' The bee-master laughed on seeing my look of surprise. 'This apparently wonderful feat is very easy of accomplishment,' he said; 'I cut the wings of all my queens, so that, when one leaves the hive, she falls to the ground; and I or my wife, being always on the look-out, catch her and put her into a small cage, which I place wherever I desire the bees to cluster, or hold in my hand, from which, in a few minutes, I have thousands hanging.'

The bee-master then conducted me to his store-shed, where he keeps the honey, and where he had an extractor, an improvement on the American one, securely screwed to the floor, and painted on the inside to prevent it from rusting. He 'slung' one bar to show me, and, certainly, the machine did its work admirably and almost noiselessly, although the frame must have been making several thousand rotations a minute. In a press at one side of the shed, if, indeed, one can call a well-fitted-up room a shed, were stored the full bar-frames waiting to be 'slung.' It was divided into six compartments, just wide enough to admit the frames, which hang in rows one over the other, as shown in fig. 6. Each row or space is capable of holding sixteen bar-frames; w, w, &c., show the edges on which they rest. All are

FIG. 6.



protected from six-legged, as well as two-legged thieves, by lock and key and well-fitting doors. On inspecting fig. 6 it will be seen that the bar-frames are of the ordinary rectangular shape, with this difference, that they hang from the narrow side instead of from the broad side, as the majority in England, *i.e.* the hives are higher than they are broad. This, the bee-master assured me, was found to be an advantage. The round-topped hives before described have, of course, not been invented long enough to have superseded them. I may here mention that most of his hives are more or less fixtures, that is to say, that three and four stocks live in one large hive, being separated from each other by dividing-boards, which he finds a great saving of trouble and equally good for the bees.

'Do you feed much?' I asked, seeing a number of shallow tin trays. 'In spring I feed, but not at all in summer; sugar is too dear in Germany (best loaf sugar 6*d.* per pound, and often 7*d.*).' 'Do you know the bottle-feeders?' I asked. 'Yes; but for spring feeding I prefer the shallow zinc or tin trays, which I put into the hive, and from which the bees will feed, when they would not touch the syrup if given to them in a bottle at the top of the hive. I have had almost every feeder that has been invented, and tried them all; but must confess that, according to my experience, nothing beats this at once simple and efficient method.'

Seeing that two or three of his stocks were Ligurians, I asked him if he considered them really superior to the common black bees. 'No,' he answered; 'they are prettier than the common ones,

but certainly do not work better. I have also tried Egyptian bees, and have a stock of them now, but am disappointed with them.'

I might here quote the price of Ligurian queens taken from an advertisement in one of the German bee journals, of which there are a good number published all over Germany:—

A good fertile queen, with 100 working bees—		
April	9/-	to 10/-
May	8/-	„ 9/-
June	7/-	„ 8/-
July . . . . . about	6/-	
August, September, or October „	5/-	
A stock in April, May, or June „	20/-	

Having now seen and heard the most important particulars of German bee-culture, we left the apiary. On my way back to the bee-master's cool and delightfully-situated cottage, I inquired if he had ever had foul brood in his apiary. 'No,' he answered; 'but since Herr Emil Hilbert's valuable discovery of a cure for this formerly fatal disease German bee-keepers no longer dread it.' 'What!' I exclaimed, in surprise. 'has a remedy been discovered which is really to be relied upon?' 'Yes,' he replied; 'a remedy which will effectually cure the disease without the destruction of a single bee, or the loss of a drop of honey or of an atom of comb. The discoverer of the remedy cured twenty-five badly-affected stocks, and other bee-keepers have cured thirty and forty without a single failure.' 'And what is this, to bee-keepers, really priceless treasure?' I inquired, eagerly. 'Salicylic acid' (*Salicyl-Säure* in German) (C_{14} H_4 O_4 + 2 H O). 'This news is certainly as wonderful as it is important,' I said. 'But how is it used?' 'I will lend you a paper giving a full description of the discovery and the means of preparing and using the preparation,' said the bee-master. 'Many thanks—I should be charmed to read it,' I answered. And from this paper I have extracted the following lines:—

'Put 50 gramms [½ lb.] of the best crystallized acid into a bottle with eight times the weight of good spirits of wine, and cork it up till required for use. This quantity of the acid should not cost more than a thaler [3*s.*] and will be found sufficient for about twelve stocks. The salicylic acid thus prepared should be mixed with water in the proportion of one drop of the spirits of wine and acid to one gramm of water [a gramm is the one-hundredth part of a pound]. The water employed for this purpose should, if possible, be soft, and of a temperature of not less than 12° Reaumur [59° Fahr.], as otherwise the acid is likely to crystallize, and also the brood would be chilled. With this weak preparation of the acid, the combs and brood, as well as the hive itself, of an affected stock should be well sprinkled, after, of course, having thoroughly shaken the mixture. The combs are to be replaced in their hives as soon as the operation is completed; and if the above proportions have been strictly adhered to, it will be found that, though the young brood will not have been in the least injured, yet the virus of the disease will have been effectually destroyed. . . . . Should the weather be cold, the hive should be taken to a warm room. Care must be taken not to let bees from neighbouring hives suck the affected honey before the application of the acid.'

Space prevents my giving any further particulars; but if any gentleman in England might desire to hear more on the subject, I should be happy to supply any further information.

The bee-master showed me a silver medal which he had been awarded at the Vienna Exhibition, also three or four bronze ones from different Apiarian and Agricultural Exhibitions in Germany, besides several honourable mentions.

I now prepared to take my leave of the bee-master and his wife; but he would not hear of my going before the *Abendbrod* (supper). While eating this meal he gave me several particulars of the Bee Department of the Vienna Exhibition, and said tha England was poorly represented; and most of those who did exhibit sent descriptions and explanations in English, which, of course, prevented many from understanding them. This was also the case with other countries. In the Italian exhibits he was also disappointed, and so with most other countries.

Amongst other things he told me that he had that spring used the salicylic acid as a preventative against foul brood, having mixed it with the syrup. Salicylic acid is said to be used as one of the best remedies for diphtheria, &c. In the provinces of Hanover and Brandenburg he told me there were bee-masters with as many as 500 stocks. 'But,' I asked, 'is it possible for one person to attend to so many?' 'No; one person cannot attend to more than about seventy. I intend to increase my apiary next year to about that number.' 'I suppose, then, Hanover is a great province for honey?' I asked. 'There are several thousand stocks there altogether,' was the answer.

After chatting for about a quarter of an hour more on European affairs, and particularly the Turkish difficulty, and having finished my *Seidel* of beer, I shook hands with my new friend, bowed to his wife, and, amidst many 'hopes that I would pay him another visit,' took my leave. They all (they were, of course, children) came to the door; and as long as I could see them, they were still standing watching my retreating figure.

Should bee-culture in England in any way be benefited by these few lines, my object in writing them will have been fulfilled; and I shall recall 'the couple of hours I spent in a German apiary' with infinite pleasure, and shall not easily forget the courtesy of the bee-master.—*Sandown, Isle of Wight.*

VARIOUS ITEMS.

There is, perhaps, nothing that puzzles the uninitiated more than the leaving of a swarm when newly hived, or the sudden collapse of a stock-hive after an impregnated queen had been introduced, and instead of energetic workers appearing, only drones or some mysteriously-built queen-cell in some part of the hive, which is often attributed to the bees carrying eggs. Of this I have in my previous letters shown how people are mistaken, and the impossibility of bees performing what is assigned for the queen to do only; so that I do not intend to enter into further discussion on the subject, unless to shut up the egotism of the workers-in-the-dark and point out an obvious error. I may, however, mention that

this year I specially set aside a number of hives and experimented, but to no purpose, further than demonstrating that the queen is the only one that places the egg in any cell. As I mean to make an explanation to Wm. Raitt's mystery, I may state that this year I had a large quantity of eggs, from eight days to three weeks old, which appeared under the microscope quite fresh. I inserted them in a hive, but not one of them was utilised. In his first letter (see page 48) the young queen had three days, which were sufficient for her to have left eggs in the hive; but the time was not sufficient to have sealed, or approaching to sealed, queen-cells: but your explanation (see same page) is no doubt correct, because, at page 63, Mr. Raitt tells us that 'three queen-cells with large grubs in them, from four to five days old, were in the centre of the brood-nest.' Now, if Mr. Raitt had acquainted himself with the natural history of the bee, he would not have come to the same conclusions as he explains at page 63, because the cells contained drones; for had they contained queens, they would have been sealed when the grub was four days old.

The foregoing is, I think, sufficient explanation, unless to those whose imaginations are greater than their intellect. Many mysterious things crop up in the manipulation of bees, but a little reflection and thought often, if not always, settle the questions. It is a mystery to many why a swarm leaves the hive after being snugly swarmed. I remember Mr. Pettigrew trying to make an explanation of this something like this—'that bees had their likes and dislikes, and the leaving of the swarm was beyond the ken of *mortals*.' But had Mr. Pettigrew been less vainglorious, and stooped to adopt frame-hives and Ligurian bees—the *ne plus ultra* in bee-keeping—he might have been able to answer simple questions on bees, and what he says is beyond the ken of mortals, would appear plain to him. But I must to the point. It is no doubt to the novice very perplexing, after the swarm has been safely hived, to see it rush out, and sometimes to fly off altogether; but had he made a careful examination of the bees after hiving, he would have observed from one to more bees running wildly upon the floor-board, and some times a great rush out and then in again. Had he at this juncture examined the interior of the hive, he would have probably seen a cluster of bees somewhere, and had he taken a feather dipped in carbolic acid or peppermint—a drop of the latter is useful to clear a hive or super of bees—and hold it gently near the bees, but not touching them, he would find the queen had been encased, and the leaving of the hive is simply the *ruse* or tactics of the bees to save the queen, because often when the rush is made the cluster disperses at the same time. But how does it come that the queen is encased? The cause of this is easily explained. When a swarm is leaving, it often, if not always, draws from the neighbouring hives (that are themselves near swarming) more or less bees, and these strangers are those that encase the queen, and which is best seen when both kinds of bees are kept in one apiary. Probably this phenomenon is most common when a number of swarms issue the same day, but it occurs often when they are only near swarming; but frame-hives and Ligurian bees disclose to intelligent bee-keepers, what appears to some leaders beyond the ken of mortals. Careless bee-keepers are a great annoyance in the spring months, in allowing weak or hungered swarms to remain in the apiary. These often enter strong hives, and the queen in many instances is destroyed. It is often recommended to join swarms at the fall, which, in my opinion, is about as great a blunder as a bee-keeper can attempt—that is, when no caution has been taken to ensure the perfect safety of the queen that is to be kept—as, in nine cases out of ten, the queen is sure to meet with rough treatment from the alien bees, and if not killed outright, is so incapacitated as to be unfit to discharge her duties as they would otherwise be. Besides, what is the use, may I ask, of risking a stock-hive by gaining bees, when it may be safely said it does not require them? Give me a young Italian queen, with a moderate quantity of bees, and I will back it against any doubled, or even trebled, hives, that it will either swarm as early or produce a larger quantity of honey under the same circumstances. If joining or reducing of hives is requisite, reduce them by joining before the honey season is past, and when this is done, take every precaution necessary to keep the queen from harm, and the bee-keeper will find, to his advantage, that when the honey is abundant is the proper time to have strength.

I intended to have given a little of my experience during the summer in this letter, but I must defer till some other time. I may make one remark, however, in reference to wax-sheets. It has been recommended that plain sheets are equal to impressed ones. Throughout the summer, for want of time, I on different occasions supplied plain sheet; but I will not do it again, because the loss of time the bees sustained in not taking to the plain ones, as they would have done with the impressed ones, was more than could be borne without regret by—A Lanarkshire Bee-keeper.

HONEY MARKET.

I think the Association should make an effort to establish a depôt for the sale of honey for the members, and also to supply them with any hives, queens, &c. they may be in want of. I have not the slightest doubt the Association has done a great deal in the way of promoting the keeping of bees (and the sale of hives, queens, &c.), but where is the use in keeping them if you cannot sell the honey when you happen to get any? It has been said over and over again that thousands of tons of honey are annually wasted every year in Great Britain for want of bees to gather it: if, however, the unfortunate bee-keeper, when his bees have gathered for him some very small portion of the 'thousands of tons,' cannot even find a market for that small portion, I say *à la* Artemus Ward, 'let it waste,' and save yourself the expense and trouble of bee-keeping on a large scale. I think it will be found most advantageous for the Association to move in the matter. They cannot depend entirely on their Show now that exhibitions are springing up all over the country, and might easily make a nice addition to their funds

from a fair profit on sales of honey, &c., without annually sending round the hat. I am afraid, however, that this scheme will find much opposition from those members of the Association who profit most by the existing state of things, but they must surely see for themselves that their sale will soon begin to fall off when bee-keepers find that their splendid harvests of honey remain unsold on their shelves.—J. Clevere Jones, *Market Drayton.*

THE LITTLE WONDER EXTRACTOR.

I have used the Slinger several times, and it answers well. Perhaps I need not say more, but having reason to believe that there are some few other very stupid persons in the world beside myself, I should like to suggest that it might be well to send out a few printed simple instructions with it for the guidance of beginners, as this might prevent possible mishaps. The proper method of making the circles did not at first occur to me, but after breaking the first comb the very natural idea of holding the top of the staff came to me, and my success was complete.—G. M., *Upper Tooting.*

[Note.—Directions are now supplied with each Extractor.]

EXPERIENCE.

I have removed most of the box-supers over my hives, finding from experience in this district that they always decrease in weight after July, and among them one of the sectional ones placed over a bar-hive on a driven swarm, and shall now make no more supers except sectional ones; for, in addition to other advantages which have been mentioned in the *Journal*, the bees can be brushed off in a few minutes by taking them to pieces instead of waiting, perhaps, for many hours for them to leave. I found the combs built in the nicest order having fixed guides for them, except one small bit which had been built from the bottom a little obliquely. This would not have occurred, I think, if I had not used a piece of wood for the bottom which had been formerly used for an adapting-board, or something of the kind, and a few foundations of cells remained upon it, so it will be well not to use such unless well scraped in future. The gross weight of honey obtained, while leaving the hive untouched and the frames heavy, was over 20 lbs. The heavy supers you have many times recorded will make you smile at this, but as this is the most I have ever obtained from a swarm of the same year, and as the early season was a very bad one, and my district near a large town, where the value of the herbage being great it is cropped early and close, I have good reason to be well satisfied with my first attempt with bar-hives. The sectional box over the other bar-hive is larger and heavier, but as there is a considerable amount of brood in it I shall leave it intact for some time for these to hatch out, as I want it to be as strong as possible for the Italian queen which I hope, with your assistance, to add to it. I have been indebted, I suppose, to Mr. Isaac Hale of Horncastle for a small pamphlet *On the Management of Italian Bar-Frame Hives*, of which he is the manufacturer, which seem to be in construction something like what I suggested in your last, though I am afraid in this damp climate they would be open to some objections. The pamphlet, however, contains many useful hints.

In my rambles a few weeks ago on the road to Exhall near this city, I passed by an old mud house with a roof of thatch. These mud houses are, I believe, called 'cobs' in Kent, and there was an old saying there that 'if you gave a cob a good hat and a good pair of boots it would last for ever.' This one seems likely to fall far short of that long period if one may judge by its present dilapidated condition, which is being helped by a black variety of the mason-bee, of which a correspondent was somewhat curious. These were flying about by hundreds, and had honeycombed the house on all sides, doing their best to undo by their masonry the ruder masonry of man. The occupants of this house were also keepers of honey-bees, though, to judge by appearances, upon the old make-shift, smothering system common to cottagers in this district—a system unworthy of men of intelligence, being wasteful in the extreme, and a cruelty and injustice to the clever little architects themselves.—C. Shufflebotham, *Mount Street, Chapelfields.*

PUTTING DOWN *versus* THE SULPHUR PIT.

This has been a glorious season for bees here. Last autumn I had eight hives, one died during winter. I took off six swarms, and two of the hives threw seconds; one of my hives was weak and did not swarm, and I did not think it advisable to take a swarm from it. I have now sixteen hives as full of bees and honey as they will pack, and supers everlasting, I cannot tell you exactly how many. I gave my father as much honey as will last his house till next season (not weighed). My wife's mother ditto (not weighed), and put away more than will last my own house till next season; besides that I have sold over 200 lbs. at 1*s.* 4*d.* per lb.

I mean only to keep eight hives over the winter, and I tried to sell eight. I offered them at 45*s.* each, in Woodbury bar and frame boxes complete, and could find no buyer, although they are from 50 to 60 lbs. weight each. I am now going to sling the honey out of them and join the bees to my other hives.

I mean to catch eight of my oldest queens (or what I think to be oldest), enclose each in a cage, and leave her a month yet in the hive, this will prevent her laying eggs in the cells, and the weather being fine and warm here yet, and in the neighbourhood of heather, I think the bees will fill the cells with honey (having no brood to support). Am I right or wrong?

Query.—Will the bees, when their queen is imprisoned, attempt to rear young queens? You are to understand I do not wish any more young bees reared in the hives I am to put down, as my other eight hives I am to keep are already very strong in bees. I wish to give the eight hives I am to put down a month of entirely honey-gathering if I can manage it. Your reply will oblige—Wm. Duke, *Kirriemur.*

[Note.—The method you propose for utilizing surplus stocks is admirable, and is far in advance of the old brim-

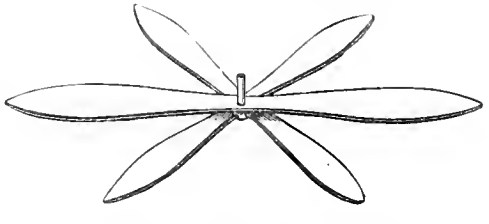
stone plan of suffocation, since the bees will be allowed, in the great majority of instances, to end their lives while enjoying their pleasant labour. On the score of profit the 'smotheration' plan will bear no comparison to that proposed, as after a few days all the brood will be sealed and honey-gathering will be the bees' sole occupation. There is, however, a possibility of their raising queens, but if they do, the proposed month will probably have elapsed before the one surviving attains her full matronly dignity, and by that time the combs will (or ought to) be so full of honey as to prevent oviposition in them. We commend the plan to all those living in heather countries, whose stocks are in excess of their requirements for wintering. —Ed.]

SUPERING.

In addition to the excellent editorial remarks in July number, I would only add that, after a lengthened experience of non-swarming colonies, considerable tact must be exercised as to when such colonies ought to be supered; first as regards the state of the population, and then as to the flow of the honey. If the additional adjunct be given too soon, bees often prefer swarming to taking possession; if too late, after royal cells are being built, they will go off despite the increased accommodation. Supposing the happy medium to have been hit, the great secret for bees to take and keep possession of a gradually-increasing amount of super room is *heat*. All supers, whether of wood or glass, must be well wrapped up with wool, or several plies of thick woollen cloth, corded tight round supers.

'Our Editor' truly remarked, 'glass supers give most trouble.' From the smooth and cold nature of that material, some ingenuity must be exercised to get the bees to take possession otherwise than by building their combs, at least at first, in an upward direction through the bottom of the glass. The most useful expedient to accomplish the desired object that I have yet met with, was suggested some years ago by a correspondent, Mr. Mitchell, Abington, and very successfully employed here ever since.

Take three similar slips of thin yellow pine wood, about $\frac{1}{16}$th thick, and cut into lengths, $5\frac{1}{2}$ in. long by $\frac{3}{8}$th at widest part, and held together by a little wooden pin in centre, $\frac{7}{8}$ths of an in. long over all, the head of pin $\frac{3}{16}$ths square by $\frac{1}{8}$th thick, the sharp lower edge chamfered off for neatness sake, when the little frame is extended, star-fashion, as seen in



accompanying sketch; points of clean new guide comb are attached to lower pin head side, or both, if plentiful. A thread, tied to upper end of pin, passing through top knob hole in glass, admits of its being lowered to close on aperture into hive; the bees are at once attracted, and gather on the combed frame, and the ever-increasing cluster is gently and gradually drawn upwards; the bees are soon in full force busily engaged comb-building.—A Renfrewshire Bee-keeper.

ARTIFICIAL HONEY-SUPERS.

Manchester *is* a manufacturing city, and this the shoddy age: woollen rags pass through the mill, reappear, like her starched calicos, highly-finished cloth, printed in bright showy colours, beautiful to look at, but of little intrinsic value. Analogous to this procedure was that of the bee-master breaking up the contents of his other hives, and feeding with the heterogeneous mess, to fill the monster glass which won the prize at the Manchester Exhibition—the worthlessness of the staple, concealed under the beauty of the new design, and glass of the glitteringly fresh cell-covers. When the *modus operandi* was unblushingly unfolded in the columns of the *Journal of Horticulture* I entered a strong protest.

I would again take up my pen to call in question the value of another piece of Manchester manufacture, recently recommended by Mr. Pettigrew in the same periodical. That apiarian—possibly finding the unsuitableness of his pet hive, the antiquated straw skep—for the production of the finest super honey, recommends his readers to drive their bees, and then cut out the best part of the combs a brood skep can be expected to yield, and so fill the handy little American supers, which are to be placed on certain hives; and these, to be fed with the contents of the 'discoloured,' or bred-in combs of the broken-up hives, for the completion of the supers, and under the gloss of fresh cell-covers—'retouched'—are to be palmed off on an unsuspected public as super honey. But I much question if such a procedure is either 'seemly,' or, were the manufacturing process known, would they be so very 'saleable in any market at 1*s.* 6*d.* per pound'—what Mr. Pettigrew admits, in an 'unconverted' state, to be hardly saleable at 10*d.*

The principle of *feeding* to obtain or complete supers is most reprehensible, whether the article employed be sugar-syrup, pure and simple, or the run contents of stock hives—which of necessity contain the stored-up sugar-syrup of by-past springs and autumns, with all the many honeys mixed, the bitter of the varied pollens and squeezed grubs adding piquancy to the flavour, and possibly perfumed, in addition, with the decaying foul-brood fungi; or yet, as a last resort, the brisk effervescing contents of the cheap foreign honey-cask, to escape such nauseous mixtures, frequently thickened with coarse brown sugar, and sold as 'run honey.' The wealthier classes, at least with us in the North, cheerfully pay about double the price for the finest super-honey, believing that in so doing they obtain, as they ought, the pure exudations of the current season's flowers, untouched by human hands, and stored in a separate compartment of the hive, distinct from all breeding contamination; and nothing will go more to hurt Honey Exhibitions, and the sale of such supers, than the belief getting abroad that they are got up artificially —mere shoddy after all.—A Renfrewshire Bee-keeper.

NEW METHOD OF SUPERING.

A correspondent in the *Journal* for last month wishes to know the experience of others in the method of supering propounded in the *Journal* of February last. The theory, which seemed so plausible, in my case had not the effect I fondly hoped. Two skeps I had driven swarms from were turned bottom upwards, a sheet of perforated zinc placed over each, and some sections with guide-combs on the zinc. The bees of one stock took to the super, and stored about 4 or 5 lbs. The other one did nothing; and when I transferred them a fortnight ago to Woodbury hives, I found them full of honey, sealed and otherwise.

Allow me to recommend to any of the readers of the *British Bee Journal* wanting an extractor your 'Little Wonder.' I had an opportunity of seeing a good many at the Crystal Palace, and I prefer yours, for cheapness and efficiency, to any of them; the honey-knife, too, is, as you say, indispensable with the Extractor. Wishing you every success, &c.—Alfred J. Clarke, 20 *Albert Street, St. Ebbs, Oxford.*

MELLILOT CLOVER.

The bed of Mellilot clover in my garden is now flourishing in tropical luxuriance; all the day murmurous with hundreds of bees busy in rifling the thousands of blossoms of their delicious nectar; the pleasant hum continuing until the western skies are crimsoned by the setting sun. Of course, from a bed measuring 10 ft × 4 ft. (and I suppose I must add by 8 ft. in height, too!) one cannot expect any very grand results with a populous apiary near. With one or two hives only in proximity the case might be different; still, if an acre of white clover will give 14 lbs. of honey daily when out in full (I am firmly of opinion the computation is well within the mark) the yield from an acre of the giant Mellilot would be at least ten times as much, and fortunately it comes in bloom when the white is waning. Assuredly, from an agricultural as well as apicultural point of view the Mellilot has a grand future before it. Close by, in an adjoining bed are three Brobdingnagian sunflowers (shade of immortal Swift, what a delightful poser for a Spelling-bee!) growing to a height of 8 feet, with flowers measuring 10 inches across,—rather too large, courteous reader, for a button-hole save in the case of one of Ortonian proportions. These also receive from the bees their due share of adoration. By-the-bye I know not whether any of ours have observed that bees on sunflowers and passion-flowers always fraternize—'compliments of the day,' and so forth, I presume in their own especial bee-language. On other flowers they do not seem to meet together so amicably.—Alfred Rusbridge, *Hive Manufactory, Sidlesham, Chichester.*

BAR-FRAME *v.* SKEP.

I have to-day removed a third Octagon super from a bar-frame-hive, bringing a total of almost perfect super comb honey up to about 75 lbs. Another is begun, and if I remove to the heather I expect to raise it to 100 lbs. by the time of the Show; another almost equals this total. Altogether to this date (August 8th) I have about 300 lbs. in supers from eight stocks. Several of these are old-fashioned skeps that have only given about 12 or 15 lbs. each. From four stocks I average over 60 lbs. besides extracted honey. My home-made extractor works beautifully.—Wm. Raitt, *Liff, by Dundee.*

BEES AND THE WEATHER.

The 'Lanarkshire Bee Keeper' asks if bees have the power, or instinct, to know what kind of weather is in the future, and we say, Yes, they do; and a few observations will help to confirm the assertion. I cannot give the dates, but between thirty and forty years ago, in the month of July, the bees wrought for three weeks as hard as bees could work, and it was a drizzling rain all that time. They, however, only increased half-a-pound in weight, and then they turned out their drones. The like I have not seen since, the white drones were in great heaps in front of the hives, and the alighting boards were covered with their legs and carcases. The bees did no more that season, and since that time I have learned to count up my per-centage for money laid out on bees, as it is a sure sign when drones are turned out that the honey season is past for that year, for without the drones our hives are not worth twopence. Again, before fine weather breaks the bees work very hard and late at night, and have a strange mournful hum, and a very anxious look; and when they are confined to their hives with bad weather, when it is going to change to fine weather they come out for water, and have a sharp, merry, ringing, humming voice; and when the seasons are good they in no wise touch the drones till the honey season is past in August. These are a few observations I have made, and if bee-keepers study the habits of their bees they will not need to open their almanacks in the bee season.—John Armstrong, *Plean Mill.*

THE SEASON IN RENFREWSHIRE.

Notwithstanding the unpropitious spring and cold early summer, strong non-swarming Octagon colonies, always independent of feeding, were beneficially lightened of their surplus store during the starving spell. Heat came at last, well on in July, and honey-gatherers rose to their supers with an avidity commensurate with the temperature, and instead of contenting themselves with the accustomed couple at once, which so shocked my friendly opponent, Mr. Wm. Carr, three, and even four, had to be supplied, to contain the outlying bees and prevent swarming, till at last the maximum of seven was reached, when contentedly they settled down to earnest work.

First series of supers were removed on 26th. In the last days of July and beginning of August was exceedingly coarse, wet weather, which lashed the nectar from the limes and greatly blighted the yield from them, but on all hands our little favourites did 'improve each shining hour;' and on my return, after a short absence from home, on the 18th, I made

an examination of my stocks, and so soon as the wrappings were removed from the best colony, my youthful assistant slid back the shutters in a trice, and joyfully reported—Lower box sealed out and out; next, and next, and next, all ready to come off; fifth, nearly sealed; sixth, fully combed; seventh, half combed. It would be an undue encroachment on your space to detail the yards of brass wire broken in our attempt to sever the weighty pile from stock-hive, till at last we accomplished it in detail, or of the beauty of finish of such supers: suffice it to say, no such honey harvest has been reaped here since the memorable season of 1868.—A Renfrewshire Bee-keeper.

FERTILE WORKERS.

Last autumn I had a hive whose queen was six years old. I never allowed her to swarm, and I knew her by mark; so there can be no doubt as to her identity. But I expected a change would take place; and in the end of September I thought there had been one, as I observed a large relay of young bees, not common for such an aged queen to produce; but I did not trouble to look into the matter, expecting all would be right. The hive was very strong in February, completely filling a 16 Woodbury-frame hive; but in the early part of that month I discovered large quantities of drone-seals lying in front. But the weather was so cold that I could not manipulate until some time in April, when I made an examination; but finding large quantities of drone-brood, I could discover no queen; so I placed a hive containing comb in its place, and gave brood-comb to it to raise a queen, and removed the hive to a distance, disturbing them to fly back to their old stand. This they did, but would raise no queen; and in like manner this was repeated seven times with no other result. But on one occasion they commenced and raised a large quantity of queen-cells from the drone-eggs. I then cut these out, and supplied them with brood again, hoping to raise a queen; but no queen was raised. I then examined the old stock, and found a large quantity of eggs newly laid; but by this time the most of the bees had returned, and evidently the fertile worker amongst them; because, by the next day, I examined the hive again, and found no less than upwards of one thousand eggs laid in the twenty-four hours. I transferred it again; but this time I was more fortunate. They immediately commenced and raised a queen-cell; but, as bad luck would have it, they sealed it up before the maggot was three days old, and it was quite apparent that there was a paucity of royal jelly. On the ninth day after sealing, when the queen should have been hatched, I had the mortification to see the whole side of the cell torn open, and a bee, yet white and wingless, fully exposed. On the tenth day they had the cell repaired and fully closed in again; but on the eleventh day the cell was torn open and an egg deposited in the cell, and on examining the hive many eggs were laid again. But to return to the old stock: on the eighth day I examined it, and the bees had dwindled down to twelve, but there were a great many eggs laid, and I at that time felt satisfied that I would be successful. To find the queen, or egg-laying bee, out of twelve, was no great difficulty. In colour there was little or no difference; but one, which the bees paid obeisance to, was more prominent over the ovaries and more pointed at the tail. This bee, along with the others, I showed to a friend, intending to catch her and examine. I put her in the hive, and left her a short time. On my return she was lost, and evidently had entered or joined the the new swarm, this being the cause of the cell being opened and the eggs laid.—A Lanarkshire Bee-keeper.

THE BEE LOTION.

I have found Dr. Pine's Bee-Lotion most efficacious. I have been stung twice lately, and instead of having the annoyance and pain for a couple of hours, all ill effects went away in a few minutes, leaving no inflammation whatever. I have found it equally useful when applied to the bites of the very annoying harvest-bugs from which we suffer much on chalk soils.—D., *Deal*, *August 7th*, 1876.

Foreign Intelligence.

FRANCE.

Bordeaux, *August* 1, 1876.—M. Edward Drory, the founder of the *Société de la Gironde* and Editor of the *Rucher*, has just been transferred to Vienna, by reason of his employment. M. Drory's departure is unanimously regretted by all parties interested in the advancement of Apiculture, and the incalculable services rendered by him to the art are fully acknowledged by the press in adequate articles. M. Drory was entertained at a farewell dinner on the 17th July, at which about forty members of the Association were present. After the meal, several toasts and effective speeches were delivered, and the *fête* terminated by M. Drory being presented with a gold medal of honour.

The season has so far proved favourable in most parts of the country, and to it is attributed the large number of entries already booked for the next Exhibition.

A meeting of Bee-keepers held at Rheims on the 9th of July resulted in the establishment of a new Association to be called Société de la Marne.

ITALY.

The great Annual Show will be held this year at Milan, from the 5th to the 10th of December next. Foreign exhibits are admitted for show only.

After a most unfavourable spring, a great change for the better took place, and the Association is continually receiving most flattering news from almost every part of the country.

M. Bertoli reports that on the Alps bee-keeping is an entire blank this year, the wretched cold weather, which began early in May killing the brood, having lasted till the middle of June. It is exceptionally fine now, but much too late.

BOHEMIA.

The Bohemian Apicultural Society will hold its 31st General Congress on the 6th of September next at Tetschen an der Elbe, in conjunction with which an International Bee Exhibition will take place.

Echoes from the Hives.

Barcaldine by Taynuilt, Aug. 23rd, 1876.—'Fine bee weather here since the 11th; rather cold east wind yesterday and to-day. I have thirteen hives all doing well.'—P. M.

North Wilts.—'Since I returned from the Bee Show at Weston-super-Mare I have been extracting. I found in one case that the queen had felt the want of room so much that she had deposited several eggs in each vacant cell—in one cell no less than six.'—G. C.

Liff, by Dundee, August 19.—'Have just returned from taking some fifteen pailfuls of honey from the roof of Duntrune House,—had a good job.'—Wm. Raitt.

Mid-Lincoln, August 19.—'Stocks in this district turn up heavy in honey, but not very strong in bees.'

Arley, near Bewdley.—'One of your 3*s.* 6*d.* Cottage Bar-frames has this year yielded me 70 lbs. of honey of the finest description, to the astonishment of our cottagers, who consider that 10 lbs. is an excellent yield from one hive.'

Weston, Leamington.—'Fine work for the Slinger now; hives crammed with honey.'

Douglas, Isle of Man.—'It is a long time since you sent me your beautiful bar-frame pattern hive, and as I am going once more to ask your advice, I must tell you some things that have happened during this summer up to the present. In the first place, from my ten hives I have only had seven swarms, though the bees seemed swarming every day. My two largest Pettigrew hives did not swarm at all, though one had a bushel of bees outside it for weeks. Two natural swarms I hived in two of my new bar-frame hives, and certainly, though so late, I am perfectly astonished and enchanted with the rapidity with which they work. I only wish I had put all my bees into bar-frames last autumn, as I see from experience what a different position I should have been in now. I examined all my hives a fortnight ago, and though they were full of comb, I could see very little sealed, and, till the last six days, we have had a fortnight of most atrocious weather, rain, cold, like winter, and wind, and no sun. We had a month of fine weather, from the last week in June to the last week in July, but only the last fortnight anything like summer; and to do the poor bees justice, as soon as a little heat came they did work, and the quantity of beautiful honey that came in daily quite raised my spirits, and had it continued till now I believe the hives would have been full; however I have come to the conclusion that bees are no use in such an abominable climate as this; I don't blame them; what can they do in a week? then comes winter weather for ten days or a fortnight; and they eat all the unsealed honey though they are fed; they are working hard and are being fed night and day to help them now, but I don't see much improvement. A lady near Douglas took one of her hives about a fortnight ago, thinking it was full of honey, the comb sealed down to the floor-board, and looking beautiful and rich clear honey. When she cut the combs what do you think they were filled with all through instead of honey?—nothing but grubs; the hive had recently swarmed, and I am dreading lest I should find mine something of the same kind. My bees are only two or three miles from the mountains, which are purple now with heather, so it is not far for them to go. And my two swarms in my new bar-frames are the best hives I have, though only about three weeks old. What I have seen of these two bar-frames is just enough to save me from despair.'

Congresbury.—'What a glut of honey we have had during the past few weeks! I drove a stock for a neighbour upon the condition that I should have the bees and brood-comb. He was going to burn them, as his wife wanted some honey. On turning up the hive, it was choked with bees; and when the combs were taken out, not a particle of brood—every cell full of honey or pollen. This was a swarm in June, first week, and has swarmed twice. He has several more hives, I should imagine in the same case; and large clusters of bees are hanging out. I want to drive these now; but he thinks they will swarm, and will not let me do it now; he fancies I want to "best" him.'

Guildford.—'Has any one tried the Desborough plan of inverting a straw skep and placing another on the top? I did, with the result that they swarmed from the under hive, went to a neighbouring tree, and returned, mounting into the upper hive. They were removed four times, but always went back again. A few weeks afterwards they swarmed once more into an adjoining field. I hived them; but on my return in half an hour, they were gone, and, I presume, returned to their original beloved quarters, where they still remain. It will be a poser to dislodge the family party, they are such termagants.'—E. H.

Chester.—'You will be pleased to learn that the Cottage Woodbury I got from you so far has done very well, and that, thanks to the hints, &c., mostly obtained from the *Journal*, this is the best bee and honey year I have yet had.'—W. M. L.

Hungerford.—'What glorious weather for bees! Would you like to know how we are going on? I have sown a large piece of ground with phacelia. My neighbours and friends are astonished at the hum of the bees upon it. It can be made, by two sowings, to last all the summer. What can be better? I tried to save the seeds of two plants out of the lot from Germany: one was a nettle, and the other a sort of corn-flower—the latter was very pretty. But somehow my seed never came up. I get more and more pleased with the Sherrington hive. In this hot weather it requires no shading, and the bees do not seem at all oppressed with the heat. Last summer (that awful summer for our pets) I started with swarms in Leicestershire. My Sherrington hives, owing to their size and the bad weather, were not more than half combed; but they wintered fairly, and the friend with whom I left them in Leicestershire reports to me that long ago they were full, and since then have yielded good supers. I fancy the public do not take to the Sherrington because they don't know its real value. I don't envy you your editorial stool this weather; *sub tegmine fagi* for me.'—T. W. Goddard.

Prestonkirk.—'It is twenty years since we had as good a honey season as the present. The hives have done splendidly, one of my stock-hives being 6 stone in weight, or 84 lbs. We have splendid tops on them.'

Kelvedon, Essex, Aug. 12th, 1876.—'Our harvest here now is over; it has been the best season for several years. I took two nadirs to-day—one weighing 56 lbs., and the other 44 lbs.; the last one was the second this year; the first weighed 44½ lbs. There is also a large super on top partly finished. I suppose the Show this year will be a great success, judging from the quantity taken in this district. My gross weight up to now, including to-day, is 693 lbs., and I expect to take 200 lbs. more—perhaps 300—which is very heavy.'—W. T. B.

Writing again, on the 21st inst., 'W. T. B.' reports that his harvest exceeds 1000 lbs.

Yorkshire Moors.—'1. My strongest stock (Stewarton hive) gave me 4 stone of honey in two boxes, leaving more than 4 stone for themselves. This was a couple of weeks since. They are now at the Moors, and are hard at work in the large top I put on when I took the above—so much so that I gave them more room yesterday by another super.

2. *Bees flying.*—A bee-keeper here took his hives to the Moors (6½ miles at least). Early in the morning, by the

time he got down home (a couple of hours later), there were some twenty or thirty bees, with leg-loads from the ling, flying about the old stands. Though he has kept bees for many years, he has never known this happen before, but has known them return four miles. The morning I returned, after taking my own to the Moors (about 7 miles), I noticed five or six bees flying about my stands with leg-loads. I supposed they had slept out, though it was quite sharp and frosty. Could they have returned too?'

Liff, by Dundee, July, 21st, 1876.—'From not making a good job of wax-foundations with the two plates, I have fallen to making them from one, by pressing on the warmed wax-sheet with the thumb. It makes a capital job, and toughens the sheet. A small plate does, as when one length is impressed it can be shifted along; and, with care, any size of a sheet can be made. Besides, the plate requires no mounting for this purpose. This will make it both easy and cheap for one to provide wax-sheets. I have no doubt that the same process would do with plaster casts.—I find *raffia* the best tying material for frames that are being filled with combs. The bees do not seem to be annoyed at it so much as tapes or anything made of thread.—I find paper-makers' woollen felt the best quilt; it is about $\frac{3}{16}$ths of an inch thick, clean, and porous enough. New, they are very expensive; but used, they can be had for a few pence per yard.—I have before me a pair of worker-bees picked up close to each other quite lively, apparently perfectly formed, but only $\frac{5}{16}$ths of an inch long, about the size of the house-fly.—I have a queen that breeds a few drones in worker-cells—about 1 in 300. They are mostly marked like the worker, and some of them have a sting. This you will think a "stunner;" but I have witnesses to the fact. Do not mention this latter awful one in the *Journal*.—We are having splendid weather here; supers filling fast.'—Wm. Raitt.

Stamford.—'Bankruptcy in numbers no longer stares us in the face. The increase of stocks is most wonderful, and it really seems a wise provision of Nature to prevent the extinction of the species. About five miles from me a cottager reports an increase of seven from one hive and six from another. He started with two stocks, so now he has fifteen. He let me have a stock in the spring, and I have had three from it; but mine is in a town, and he is surrounded by woods and capital bee pasturage. The yield of honey will be very great as well.'—J. G. D.

Swanley, Aug. 19th, 1876.—'Just a line to say the Extractor arrived safe, and—I must confess, with a little doubt—I put a bar of honeycomb in to see the result; but I very soon had all my doubts and fears removed. After spinning the Extractor round a few times, sure enough there was the golden nectar at the bottom of the "Little Wonder;" and I said, You are a Great Wonder, and a perfect success.'—Percy Skinner.

Grantham.—'The "Little Wonder" is a wonder, and it is a wonder to me that such a "Little Wonder" had not earlier existence, when I think of the many wonderful minds engaged in producing other wondrous wonders. My first trial of it was most satisfactory. I extracted 23 lbs. from four frames of comb in a very short time and with very little trouble; but I had plenty of help—more, indeed, than I wanted. It was, "Now let me have a go," from first one and then another, that the four frames were quickly relieved of their contents. It has now gone a trip out in the country, and, if I mistake not, will electrify some of the Skeppers.'—R. R. Godfrey.

Aisby, Grantham.—A Prolific Stock.—'Last year, in May, I had a large swarm, which did very well during the summer, and wintered capitally. Early this spring appeared very strong. On the 30th of May a swarm came off, another on the 10th of June, another on the 12th, another on the 28th, and the fifth, and last, on the 12th of July. All are doing first-rate; I have taken one 7 lb. super from them and others are filling—"Hurrah!" —Mrs. Charles Nix.

Queries and Replies.

Query No. 168.—Would you say in your next *Journal* whether noises, such as knocking, about a dozen yards from the hive, make any difference to bees?—W. W., *Aug. 21st.*

Reply to Query No. 168.—The *noise* made by knocking is of no consequence to bees; but if there be sufficient concussion either of the earth or air to communicate itself to the hive-stands, the bees will not stay, or, if they do, will not do well. Jarring the hive is peculiarly offensive to bees, and if it occurs often in the winter it will wear their life out of them.—Ed.

Query No. 169.—Will you, in September *Journal*, 1st, give best way to extract heather honey? 2nd, also time to give artificial pollen for autumn breeding. If packed as by bees naturally in comb, and put into hives, would they not use it?—F. W., *West Bromwich.*

Reply to Query No. 169.—1st, it has been repeatedly demonstrated that heather honey, when sealed, becomes too tough and gluey to be removable by the Extractor; but we cannot see why it cannot be slung out while in a more liquid state. *i. e.* before it has been sealed over. The gelatinous, nay, almost solid nature of sealed heather honey gave Mr. Pettigrew an opportunity of condemning the Extractor some years since; but as it has never been claimed for the machine that it will extract solids, little harm was done, and the use of the machine has gradually increased, in spite of opposition. 2nd, If packed in the comb, as by bees, perhaps they would use the artificial pollen; but that intended by them for future use is very carefully sealed, with a coat of honey upon it, and will keep for any length of time. Whenever an attempt has been made to save the bees trouble by filling their combs with artificial pollen the result has been its fermentation, as far as we have ever heard or seen, and whenever we have offered artificial pollen out-of-doors in autumn, the bees have invariably refused it.—Ed.

Query No. 170.—My Ligurians gave me a good swarm on the 21st of June, and I put them into one of your cheap bar-frame hives. They have filled the hive up to a good weight—too heavy for wintering; and I want to get all the bees out, either by driving or fumigating. *The floor-board is fixed,* and the frames are all so built up with the combs that I want to get rid of the bees without disturbing the comb and setting the honey running. If an empty hive or box were placed over them, and smoke blown into the entrance, would the bees go up? Or could the object be attained by stopping the entrance, inverting the hive over an empty box, and fumigating with prepared fungus, so that the bees might drop into the empty box? Will you advise me how to proceed, in order to set up the bees in another hive, feeding them up for the winter, and disposing of the full hive and its contents just as it stands?—J. N. C.

Reply to Query No. 170.—The floor-board of the hive was only fastened on temporarily, to keep it snug whilst travelling, and very little force will be necessary to remove it. It should have been taken off before the bees were put into the hive, that the latter might be under more ready command for manipulation.

Blow a little smoke into the entrance in the evening, prise the hive from the floor-board, remove all nails, and then prop the hive up so that the bees shall get all up amongst the combs for protection. When darkness comes on, and the bees are quiet, lift the hive right way up on to another of similar dimensions, and fumigate through the original entrance, so that the bees may drop into the under hive. Inverting the hive, as you propose, before fumigating would render the operation futile, for between the upper parts of the full combs (lowest when inverted)

there is barely room enough for a bee to crawl, and consequently the mass would remain in the combs; but by keeping the hive in its proper position, the bees would have plenty of room to fall down into the cavity prepared for them. We are not in favour of fumigation, and would prefer lifting out each comb singly, and, brushing off the bees, would stand them aside until all were abstracted; we would then utilise the brood and pollen combs, and, placing the honey-combs in a separate box, would sell them, or, if not free from pollen, would extract the honey from them, and give them (the combs) back to the bees. We always grieve to hear of brood and pollen being wasted.

Driving could be resorted to to remove the bees; but the process might damage the combs, which you particularly wish to avoid. If you keep the combs intact for sale as proposed, pray do not keep them long, as the brood would soon decompose and create a very unpleasant odour, not commendatory to the honey.—Ed.

Query No. 171.—Will you please say:—

1. If you generally recommend, during the winter, all the frames and combs of a Woodbury to remain in the hive, or do you take out the comb and contract the hive for the sake of heat economy? If so, how many do you remove; and when? 2. Do you recommend autumnal feeding with artificial pollen, as in spring? 3. Is it absolutely necessary or very important to make the winter passages for the bees? If so, when should they be made? 4. In taking off some honey-comb, I notice a great deal of pollen in the bottom of some of the cells and honey on the top of it. Is this usual? 5. What would be fair to charge at the Apicultural Exhibitions (for sale) for honey-comb at per pound, and for extracted honey at per pound?

Wishing you have had a good honey harvest, believe me, &c.—James Hamlyn.

Reply to Query No. 171.—Before the introduction of the quilt as a winter covering for hives, the outer combs usually became damp during winter, and then it was deemed advisable to remove them; but as the quilt allows the moist vapours of a hive to escape, their removal is not now necessary on that behalf. As regards economy of heat, combs are the very best non-conductors, each containing many hundreds of cells filled with still air; and if the circulation round the ends of the frames can be prevented, no better economisers will be needed.

2. We have never been able to induce bees to take artificial pollen in the autumn. As the days shorten, their breeding declines, and they do not care to gather the pollen for storage.

3. Winter passages are highly important, and they should be made now. A small hole through each comb, a little above the centre, is all that is needed, unless two be made, which some think better.

4. Pollen, when stored and sealed, has usually some honey immediately under the seal—probably on the principle on which the housewife proceeds when placing brandy on preserves, or melted suet on potted meats. Pollen is thus often the cause of loss to the cottager, who, believing that all that is sealed is honey, crushes the pollen into the mass, and spoils his run honey.

5. The price of honey and comb must depend upon the supply and the demand. This being a year in which the harvest is great, the prices will probably be lower than usual. Honey in the comb should still be worth from 1*s.* 6*d.* to 2*s.* per pound, and pure run or extracted honey about 1*s.* per pound.

Query No. 172.—Does the use of puff-ball in fumigation leave any injurious after effects? And, how is artificial pollen supplied to the bees?—William Mann.

Reply to Query 172.—There are differences of opinion regarding the after effects of puff-ball fumigation, but we never use it except to illustrate its effect as an anæsthetic, believing that it *is* injurious. Artificial pollen is given in the spring in skeps filled with deal shavings. The pea, or other flour, is sprinkled amongst the shavings, and the bees go into them and load themselves with it. In autumn they will not take the trouble to collect it.

Query No. 173.—Will you please answer the following in your next *Journal*:—

1. I intend transferring the combs from my frame-hives that are building crooked this autumn. Should I cut out nearly all the drone-comb?

2. How far from each other should Mellilot clover be planted, and will they require supports?—W. H. J.

Reply to Query No. 173.—1. Yes; leaving one piece about the size of the hand in the bottom of a central comb, at the back of the hive, or, if preferred, it may be left in an outside comb next the hive-wall; but on no account allow it to remain in the brood-nest, which should be occupied by worker cells only.

2. About 2 feet from each other on well-manured land, although they will grow in a garden-walk, and yield honey with no attention. They require little support, except in windy situations.—Ed.

NOTICES TO CORRESPONDENTS & INQUIRERS.

G. T.—If you will send your address, enclosing stamp, we will send you a leaflet on Transferring. It is not fair to others to be constantly filling our space with repetitions.

R. G.—There is little doubt but that the bees have taken possession of the skep placed over the feeding apparatus, and have used it as a super. This, however, may be so readily verified by examination that further suggestions from us appear needless.

R. P.—Your Ligurian swarm, if it survive the winter and does well, will throw off a pure Ligurian swarm, headed by its present queen. About nine days afterwards one or more after-swarms will probably issue, and these, as well as the old stock, will have young queens as sovereigns; but it is doubtful whether they will mate with English or Ligurian drones. In our experience, the instinct against wedding with blood-relations is apparently so strong that of twenty Ligurian queens raised in an apiary where the Ligurian drones have been as thirty to one of the English, not more than five or six have mated with the former. The removal of the adjacent black stocks will probably have little effect, as young queens fly great distances in search of their partners, and drones do the same; so that isolation and selection are well-nigh impossible in this country.

Mr. O. Poole, of Weston-super-Mare—who, on page 41, suggested that those to whom, at his own cost, he had supplied 200 patterns of perforated zinc, should subscribe 1*s.* each to the Prize Fund—begs to acknowledge the receipt of 1*s.* from C. T.

B. B. A.—If this should meet the eye of any gentleman who has not paid his subscription to the British Bee-keepers' Association, we respectfully beg of him to do so at once, to save the Hon. Sec. the labour of applying for it at this busy season; and as the Prize Fund shows a slight deficiency, we hope the friends of apiculture will put forth a helping hand in that direction.

Personal Favour.—We respectfully beg of our friends, during this busy month, that, before determining to write for information on any point, they will kindly oblige us by consulting their indices to see if they cannot find what they need in what has already been published. We are obliged to ask this, as our correspondents' queries overtax us, and we cannot purchase assistance in that branch of our work. September, with its big Shows, promises to be exceptionally heavy upon us, and in their interest we crave a little relief. We have given four extra pages this month, which has enabled us to insert some of the contributions which have been in type for some time.—Ed.

OUR WANT AND SALE COLUMN.

WANTS may be advertised at 2*d.* per line of eight words, for one insertion, renewable in succeeding months, for 3 months, without alteration, for half price. Replies must contain stamped directed envelope, or they will not be forwarded.

All monies must be deposited with the Editor, who will communicate with the vendor, when, if a sale be effected, one penny in the shilling will be charged on all amounts not exceeding one pound, and one halfpenny additional will be charged on every shilling beyond that amount, and the balance forwarded to the vendor.

Should no sale take place, the money deposited will be returned to the depositor, less a uniform charge of four-pence to cover postage.

The carriage of all articles sent, except such charges as are incurred in first placing them on a railway, must be paid for by the depositor, and if not equal to the description given, the advertiser must pay the cost of their return.

The postage of small articles, such as books, must be pre-paid by the sender. The name of the town or country in which advertisers reside, and the name of their railway, should be mentioned as a guide to probable cost of carriage.

No advertisement must contain more than sixteen words. P. O. Orders to be made payable to C. N. ABBOTT, office of *British Bee Journal*, Hanwell, W., London.

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No.

326 'The Bee-keeper's Magazine.' Vol. I., Nos 1, 4, 5. Vol. II., Nos. 3, 9, 10. Vol. III., Nos. 1, 2, 7. 1*s.* each, or 9 Numbers for 6*s.*

327 'The National Bee Journal.' Vol. IV., Nos. 8, 11, 12. Vol. V., No. I. 1*s.* each, or 4 Numbers for 3*s.*

328 'Novice's Gleanings.' Vol. I., Nos. 1, 2, 3. Three Numbers for 2*s.*

330 Swiss Bar-frame Hive. Painted, 8*s.*

331 Six Rye Straw Hives, workmanship guaranteed, cane-worked, locked stitch, turned wood feeding hole, rim top and bottom. 8½ × 16. Price 18*s.* Berks.

334 Dry Puff-ball, post free, per packet 1*s.*, of F. S. Clutten, Fressingfield, Suffolk.

335 'Journal of Horticulture,' in good preservation, April 2nd, 1874, to September 23rd, 1875, inclusive, 10*s.*

336 Wanted.—Nos. 5 and 6 of *British Bee Journal*, 1*s.* each offered.

338 For Sale.—A large number of frames of pure sealed honey-comb, invaluable for giving to new swarms, price 1*s.* 6*d.* per lb. Yorkshire.

339 Skeps filled with comb, dark, but healthy, 5*s.* each.

343 One Carr-Stewarton Body Box-stand, 3 octagonal supers, and wooden cover, 25*s.*

344 One Neighbour's Improved Cottage Hive, 3 glass-stands and zinc cover, used one season, 30*s.*

345 One Woodbury Hive, complete, used one season, well painted, 18*s.*

346 One Carr-Stewarton Body Box, 8*s.* 6*d.* not been used.

347 One Proctor's Patent Safety Hive, filled with healthy comb, all complete with cover and roof, 25*s.*

348 Plain Wax-sheet, per lb. 4*s.* post free.

351 Two Abbott's Cottagers' Hives, filled with combs, quite healthy, 25*s.*

352 Straw Woodbury Hive, with comb and improved top, 15*s.*

367 *British Bee Journal.* Vol. I. 20*s.*

368 Apiary, complete Bee-house, with 40 wooden frame Hives, about 300 lbs. sealed Honey in frames, and about 400 frames with good comb, a closet to hang 600 frames; 30 straw and wooden Hives, with other Bee-furniture, as Hives for Queen raising, &c. Price 40*l.* complete. J. G. Kirsten, Bridlington, Yorks.

369 Vol. III. *British Bee Journal* (unbound), 6*s.*

370 'Bee-keeping,' by the *Times* Bee-master, 2*s.* 9*d.*

371 Seven zinc Bee-feeders, mahogany floats. Ireland. 1*s.* each.

WANT AND SALE COLUMN—CONTINUED.

No.

372 Woodbury Bar Hive, dovetailed, 1-in. thick, 10 frames, 2 windows, with hinged covers and floor-board; also well painted cover, with porch riser for super, and ventilated top with acorn knob. Ireland. 25*s.*

374 Wanted.—Stocks or swarms of English Bees. Address G. Wear, Arslaby, Whitby.

375 Finest Heather Honey, in comb or in tins. Apply to A. J. Anderson, Tullochleys Clatt, Aberdeen.

376 Extracted Pure Spring Honey for Sale. Cash offers wanted.

377 Wanted immediately, a Starling Extractor, full size Send price and particulars to Editor.

378 Two Stocks Black Bees in First-rate Bar-frame Hives. Healthy and strong. 15*s.* each. Sussex.

379 Fine extracted Honey 1*s.* per lb; also small supers 1*s.* 6*d.* per lb. Sussex.

380 Four Stocks Hybrid Ligurians in First-rate Bar-frame Hives. Healthy and strong, 20*s.* each. Sussex.

381 Two Swarms Hybrid Ligurians in Straw Skeps, good condition, 12*s.* each. Sussex.

CRYSTAL PALACE SHOW.—Two First Prizes, and Two Silver Medals were awarded to C. N. ABBOTT, Editor of the *British Bee Journal*, for best BAR-FRAME HIVES in both Classes.

The Illustrated Catalogue is now ready. Please send stamped ADDRESSED envelope to Editor *British Bee Journal*, Hanwell, W., London.

THE NEEDLE FEEDER. Easily applied to every description of Hive; a hole too small for a Bee to pass being all that is required. Two for 2*s.*, by post. G. F. PERKINS, Hill Wootton, Warwick.

SEVERAL HIVES of BEES for SALE in Woodbury, Ten Bar-Frame, Neighbour's Improved Cottage, and Common Hives. Apply to J. TORRY, Fern Cottage, Lower Fant Road, Maidstone.

FOR SALE.—Eleven Stocks of Bees. Two are Ayrshire Hives (one framed) in shed (moveable); one Wooden Hive, framed and glass back for inspection; one Pagden Straw Hive, the rest in Straw Skeps. Four have double swarms in, and no honey; taken last autumn. Price for the lot, £12. In heather country, where they can stand till heather is over. Apply, Capt. CLARK, North Camp House, Aldershot.

TWO FIRST PRIZES and CERTIFICATES.

ABBOTT'S ECCENTRIC EXTRACTOR, 'THE LITTLE WONDER,' has been exhibited at the West of England Apiarian Society's Show, at Weston-super-Mare, and at the Devon and Exeter Bee-keepers' Association's Show at Exeter, during the past month, and on each occasion it was awarded the FIRST PRIZE AND CERTIFICATE, and was pronounced A MARVEL OF SIMPLICITY. For portability it is unexampled; the large size, to take frames 20 inches by 12, weighing only 8 lbs., and it is so simple in construction that it cannot get out of order. Price 15*s.* and 17*s.*, of the Inventor, C. N. ABBOTT, Editor of *British Bee Journal*, Hanwell, W. London.

QUEENS! QUEENS!! LIGURIAN QUEENS!!!

THOSE of our Friends who intend to favour us with Orders for Imported QUEENS, should do so at once, *i. e.*, before the 10th of September inst. Each year we beg that Orders may be given EARLY, and those who do so get well served; whilst others, by delaying, cause much disappointment, vexation, and loss of time. Prices for September and October, 7*s.* each, 40*s.* for Six, and 75*s.* per Dozen. Editor, *British Bee Journal*, Hanwell, W., London.

BRITISH BEE-KEEPERS' ASSOCIATION.

At a Committee Meeting held on the 25th August, at 15 Beaufort Buildings, Strand,—Present, Mr. W. O. B. Glennie in the Chair, Messrs. C. N. Abbott, F. Cheshire, T. W. Cowan, C. H. Edwards, G. Henderson, J. M. Hooker, J. Hunter, F. R. Jackson, G. Walker, and the Hon. Sec.,—It was resolved, That no gentleman shall be appointed to act as a Judge in any class in which he is an exhibitor. Some gentlemen were then selected to whom the Secretary was requested to write inviting their assistance at the Show in the capacity of Judges. Resolved, That the Annual General Meeting be held at the Alexandra Palace, on Friday, 15th September, at 5 o'clock. The Secretary having stated that Mr. Jas. Lee had written offering two or three Hives for prizes at the coming Show, he was requested to thank Mr. Lee for his kind offer, and to accept the Hives for Special Prizes to be offered at the Show of 1877, they to be exhibited as such by the Association at the Alexandra Palace this year.

Gentlemen being required to conduct the manipulation of Live Bees at the Show, Mr. Hunter and Mr. Cheshire each offered their services for a part of the time, and Mr. Abbott promised that one of his Juniors should also assist. Mr. Hunter and Mr. Cheshire undertook to superintend the entire arrangements for this part of the Show, and were empowered to purchase not less than 18 hives of Bees for the purpose.

The Association will hold their Third Great Exhibition of

BEES AND THEIR PRODUCE, HIVES, AND BEE FURNITURE,

AND HONEY FAIR,

At the ALEXANDRA PALACE,

SEPTEMBER 15th, 16th, and 18th, 1876.

SCHEDULE OF PRIZES.

HIVES.

Classes 1 to 5 to be fitted with guides ready for use.

Class. Prizes.

1 For the best hive for observation purposes, all combs to be visible on both sides ... ... 1st Prize, silver medal
2nd Prize, bronze medal

2 For the best moveable comb hive (to include covering) for depriving purposes ... ... 1st Prize, silver medal
2nd Prize, bronze medal

3 For the best hive for use on the storifying principle ... ... 1st Prize, silver medal
2nd Prize, bronze medal

4 For the best hive fer use on the collateral principle ... ... 1st Prize, silver medal
2nd Prize, bronze medal

5 For the most economical (best and cheapest) complete hive on the moveable comb principle for cottagers' use ... ... 1st Prize, silver medal
2nd Prize, bronze medal

6 For a hive, for general use, on an entirely new and approved principle... Silver medal

7 For the best and cheapest skep for depriving purposes ... ... Silver medal

Each Exhibitor must be prepared to guarantee that he will supply any number of similar hives at the prices affixed to his exhibits. The prizes will only be awarded on this understanding.

BEES.

8 For the best stock of Ligurian bees—
1st Prize, silver medal
2nd Prize, bronze medal
3rd Prize, certificate

9 For the best stock of English bees—
1st Prize, silver medal
2nd Prize, bronze medal
3rd Prize, certificate

10 For the best species or variety of honey-bees (capable of cultivation in England) other than the Ligurian or English bee ... ... 1st Prize, silver medal
2nd Prize, bronze medal
3rd Prize, certificate

The bees to be exhibited living, in Observatory hives.

HONEY.

Class.		Prizes		
11	For the largest and best harvest of honey in the comb, from one stock of bees, under any system or combination of systems. The honey to be exhibited with or upon the hive that produced it (or its facsimile). To be attached thereto, a legibly written explanation of the method adopted, the locality, pasturage, dates of swarming and supering. To this may be added any particulars of his apiary which the Exhibitor may be disposed to give, such as number of hives, average yield, &c.	60/0	40/0	20/0
12	For the best exhibition of super honey from one apiary	60/0	20/0	10/0
13	For the best straw super of honey— 40/0 30/0 20/0 15/0	12/6	7/6	5/0
14	For the best wood, or wood in combination with glass or straw, super of honey ... 40/0 30/0 20/0 15/0	12/6	7/6	5/0
15	For the best glass super of heney— 40/0 30/0 20/0 15/0	12/6	*7/6	5/0
16	For the best exhibition of run or extracted honey, in glasses of 5 lbs. to 10 lbs. each	20/0	12/6	7/6
17	For the best exhibition of honey in supers, or sections of supers, separable, and each not more than 3 lbs. in weight, the total weight of each entry not te be less than 12 lbs. ...	30/0	20/0	10/0

COTTAGERS' CLASSES (No Entrance Fee).

18 For the largest and best exhibition of super honey in comb, the property of one exhibitor, and gathered by his own bees—
40/0 and certificate, 30/0 and certificate, 20/0, 10/0, 7/6, 5/0

19 For the best super of honey—
30/0 and certificate, 20/0 and certificate, 15/0, 7/6, 5/0

20 For the best exhibition of run honey in glass jars, containing 5 lbs. to 10 lbs. each—
30/0 and certificate, 20/0 and certificate, 15/0, 10/0, 7/6, 5/0

All the honey and comb exhibited in the above classes must be *bonâ fide* the produce of 1876, and gathered by the bees in the natural way in the United Kingdom.

COMESTIBLES.

Class. Prizes.

21 For the best liqueur or wine made from honey, with recipe attached 20/0

22 For the best sweetmeats made from honey, with recipe attached 20/0

MISCELLANEOUS.

23 For the best and largest collection of hives, bee-furniture, bee-gear, and apiculturists' necessaries, no two articles to be alike 1st Prize, silver medal
2nd Prize, bronze medal

24 For the best drone-trap ... ... Bronze medal

25 For the best bee-feeder, the invention or adaptation of exhibitor ... ... Bronze medal

26 For the best method of quieting bees during manipulation ... ... Bronze medal

27 For the best and cheapest supers for general use in an apiary ... ... Bronze medal

28 For the cheapest, neatest, and best supers for producing honey-comb in a saleable form ... ... Bronze medal

29 For the best honey-extractor, portability and cost to be taken into consideration ... ... 1st Prize, silver medal
2nd Prize, bronze medal

Class. Prizes.

30 For the finest sample of pure bees' wax, in cakes of not less than 1 lb. in weight 10/0 7/6 2/6

31 For any new invention calculated in the opinion of the Judges to advance the culture of bees—

Silver or bronze medal at the discretion of the Judges.

32 For the best and most interesting collection of natural objects connected with apiculture, illustrating the natural history and economy of the honey bee ... ... Bronze medal

33 For the best MS. lecture on bee-keeping, with or without diagrams, the prize MS. to become the property of the Association ... ... £5.

This prize not to be awarded if not considered by the Judges of sufficient merit.

34 For the best micro-photographic slides, suitable for use in magic lantern, illustrating bees ... ... Silver medal

35 For the best method of producing wax foundation for combs, either attached, or capable of being easily attached to bars ... ... 1st Prize, silver medal
2nd Prize, bronze medal

Every hive or miscellaneous apparatus substantially the same as exhibited last year must have in its construction a distinct improvement to make it eligible for another prize; without such, and in case it should again be adjudged as the best of its class, a certificate only shall be given, but the fact of the two adjudications shall be stated on it.

Class

36 A separate class will be open for the exhibition of hives and apiarian appliances at present used in other countries, as well as any utensils, obsolete or curious, which are likely to prove attractive and interesting to Bee-keepers. *No Entrance Fee will be required in this class*, and gentlemen in a position to send such objects of interest will oblige by communicating with the Hon. Sec. as early as possible.

Class

HONEY FAIR.

37 A distinct counter will also be appropriated for the exhibition and sale of honey in comb and in glasses, and in this department sales will be permitted and goods delivered at all times during the Show. The Association will provide salesmen. All money must be paid through the hands of the clerk in attendance, and will be afterwards accounted for, less 1*d.* in each shilling for commission. Every exhibit at the sale counter must have distinctly marked on it the weight and the price, which must include the package which contains it. The Association will not undertake to break bulk.

No exhibit entered for competition will be allowed to be removed until the close of the Show.

Every intending Exhibitor must register his name with a fee of One Shilling (which shall be the entry-fee for one exhibit in any class) by August 25th, any additional number of entries may be afterwards made on or before September 8th, on payment of an additional fee of One Shilling each. The amount of Counter space that will be required for the Exhibits must also be stated.

Each Exhibitor and Member may have a Ticket of FREE ENTRY to the Show, on application to the Hon. Sec. prior thereto.

The following Donations in Aid of the Prize Fund have been promised or received from:—

	£	s.	d.
Alexandra Palace Company	25	0	0
J. M. Hooker	1	0	0
T. W. Cowan	5	0	0
J. Hunter	1	1	0
A. Neighbour	1	1	0
W. Hughes	1	1	0
F. R. Jackson	1	1	0
C. H. Edwards	0	10	6
W. Bassano	1	1	0
C. W. Smith	1	1	0
J. Y. Sturge	0	10	0
Hon. and Rev. H. Bligh ...	1	1	0
W. Carr	0	10	6
F. Cheshire	1	1	0
J. N. Coleman	0	5	0
H. G. Morris	1	1	0
James Hamlyn	1	5	0
J. S. Wood	0	12	11
P. H. Phillips	0	5	0
Sir J. Lubbock	2	0	0
Rev. T. Scott	1	1	0
Rev. F. Willett	1	0	0
Rev. W. J. Stracy	0	10	0
James Lee	1	1	0
Rev. J. Crompton	0	2	6
Geo. Walker	0	10	0
T. H. Harrison	1	1	0
Miss A. Cressy	0	5	0
Rev. J. L. Sisson	0	5	0
T. W. Saunders	0	5	0
Rev. J. F. Hodgson	0	5	0
F. H. Lemare	0	2	6

FURTHER DONATIONS WILL BE THANKFULLY RECEIVED.

FOX KENWORTHY, *Hon. Sec.*

EALING, W.

THE

British Bee Journal,

AND BEE-KEEPER'S ADVISER.

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Editorial, Notices, &c.

OCTOBER.

Now that the great show of the season at the Alexandra Palace is a thing of the past, and the excitement born of its advent, and the brightness of its existence, has in some degree passed away, bee-keepers, after counting their gains and indulging (perforce) in a smile of satisfaction, will do well to turn to their apiaries with a view to getting all ready for the winter which will so soon be upon us. The success of the summer affords no criterion of the dangers and difficulties which attend the variableness and inclemencies of the winter months; and he who relies on the fact of his bees having done well in the honey season without attention, and leaves them to their fate in winter, will probably in the ensuing spring be a sadder and a wiser man.

Having an apiary consisting of straw skeps only, we would recommend that its owner follow our directions *forthwith*—not putting off the duty, and by procrastinating waste the time and lose the opportunity of preparing his stocks for the winter, and, when too late and his bees are dying of dysentery or starvation, expect us to give direction which will save them from their doom. Old Father Time is well represented as wearing a forelock by which to seize him at the meeting-moment, and bee-keepers will do well to remember that he has '*no back hair*,' and consequently when once past, there is no chance of catching him, and to overtake him is impossible.

We trust, therefore, that our readers will do the necessary work at once, and if afraid of stings, don the veil and gauntleted gloves, tuck their unmentionables into their socks to prevent the bees tickling their legs—wearing short knickerbocker gaiters will do equally well—and with their bag of tools in hand, follow us on a fine day through the apiary and proceed with the—

Examination of Stocks.—This is usually thought a terrible undertaking, but when well protected there is nothing to fear; and so, without loss of time, let us puff a little smoke into hive No. 1, and while the bees are alarmed thereby, turn it completely over and set it upside down in a pail to prevent it rolling over, and with a bottle of syrup, into which a notched cork has been thrust that it may act like a vinegar bottle at an oyster-shop, we will smartly spurt a few jets of syrup over the combs and bees, that the latter may find amusement while we *clean the floor-board*. This can best be done with the steel scraper; the back of our gauge will do well, or failing either, a piece of stout glass will be found serviceable, and almost before the bees are aware of the interference, the board will have been scraped clean, all vermin and their nests will have been removed from under and around it, and it will have been replaced on its stand with an empty hive upon it. The full hive will next demand attention, and a little more smoke having been blown upon its combs, the bees will have retreated downwards amongst them, and then *its* condition can be ascertained without difficulty, and should be carefully noted down by an assistant; weight, size, apparent age of comb, the quantity of bees, the presence or absence of brood, and its condition, being the chief points to record, and then with a rather stiff brush (an old hair-brush will do) the edge (the bottom rim) of the hive should be cleaned of every sign of dirt, and the cocoons and *débris* of wax-moth. After cleaning, it should be carefully replaced on its floor-board, the empty skep, which was simply a decoy to amuse homing bees and prevent them wandering to adjacent hives, having been removed.

All the other hives in the apiary should be similarly treated; and if any appearance of robbing ensues it would be well to close every entrance with perforated zinc, and allow the holes in the tops of the hives (covered also with the zinc) to be exposed, until late in the day, when all should be readjusted and the bees allowed to enter their own hives.

Equalizing Stocks will be the next proceeding, and should be the work of the next fine day (feeding if necessary going on in the meantime); and where it is requisite to equalize, we cannot too strongly caution our readers to avoid the too common error of *levelling down*, *i. e.* taking from the strong to assist the weak,

the only safe course for wintering being to *level up*, or, in other words, to *strengthen* by *uniting*.

Reference to the *paper of notes* will enable the bee-keeper to determine which stocks are too weak, either in number or provision, to stand; and it is possible (and probable, too) that some will be so overladen with honey, that breeding will have been too early discontinued (prevented), and the bees being old ones, there will be but a poor chance of their surviving the winter and spring. How often do we hear of stocks perishing in spring, with plenty of honey in the hives!

Whenever it happens that a heavy stock of the kind just named stands next to one comparatively poor, that requires strengthening, it will be wiser to add the bees of the heavy stock to the light one, and by high stimulative feeding to induce breeding and storing, so that the stock may evolve a batch of young bees that will be capable of living until the hatching brood in spring recuperates the hive in numbers and strength; the honey and comb from the heavy one being appropriated or utilized by transferring.

It should be remembered that stocks, standing far apart in a garden, cannot be united without loss, in consequence of the bees returning to their original stands when next flying; therefore, if two such have to be joined, they must be gradually brought together by short daily stages, or they should be taken to a distant stand, say two miles away, and united there, and having been stimulated into breeding and strength, brought back in about a month's time.

If a hive should be found to contain *foul brood*, which may be known by the ragged, sunken, and pierced condition of the sealed (?) cells, and by the fœtid nature of their contents, it will be unwise to attempt a cure, for the combs will be worthless, except for the honey they may contain, and the bees being few and old, will not be worth any labour bestowed on their preservation, and it will therefore be good policy (to prevent the disease extending) to give them 'a sharp shrift,' either with sulphur fumes or drowning, for where the dire necessity arises, a sudden death is the more merciful.

Uniting.—When two or more stocks are equally poor, and it is considered necessary to unite them, the best plan, presuming they have been brought together by either of the methods mentioned, will be to drive out the bees of all the stocks into separate skeps, and when they have had time (say quarter of an hour) to recognise their poverty-stricken condition, mix them together in one hive, and sprinkle with a little scented syrup, leaving them to ascertain 't'other from which,' if they can; a process so confusing and useless when they have no stores to defend, that as a rule they fraternise like poor brothers in darkness whose only hope is *light*. When they have had time to mingle and cluster, which they will presently do, one of the hives containing the newest and straightest combs should be selected for their domicile, and the bees allowed to enter, or if the united bees are sufficiently strong, a bar-frame hive should be obtained, and its frames filled with the combs, taking care to reject any superabundance of drone-comb, in fact leaving only about a hand's breadth at its lower back, or on one of its sides. While this is being prepared and fitted, the bees will have sufficiently fraternised, and may then be shaken on to the tops of the frames, between which they will soon disappear. A quilt should then be prepared, and laid upon the hive, and a feeding-hole having been cut, stimulative feeding should be begun and continued until the frost gives warning to desist, or until the hive becomes sufficiently heavy to stand.

Winter Food.—Barley-sugar is the best winter food for bees, as in taking it they do not convey too much water into the cells, and consequently the liability to dysentery—the greatest winter scourge of bees—is largely prevented, although as a rule the quilt, with proper ventilation above, is fair security against it.

Quilts.—Taking a hint from Captain Martin, of King's Somborne, we have concluded that, instead of using old carpet only for crown covering, it will be better to place a thin 'sheet' first upon the frames, to settle down and give the bees a more gentle hint to get out of the way, than the heavier carpet does. He uses strainer-canvas or cheese-cloth, and upon it anything that comes to hand; but certainly one of the handiest of his adaptations is *house-flannel*, a yard of which, costing about fourpence, will form a splendid blanket; and if over that a square of carpet be laid, the bees may confidently be 'tucked up' for their winter sleep, provided all other matters have been rightly attended to. The best feature in the house-flannel for crown-covering is its actual costlessness, for every good housewife keeps a stock of such useful material, and it will keep just as well on the bee-hives as in the store-closet, and will be found exceedingly handy for cleaning-up purposes after manipulating; and when from any cause it becomes foul or dirty, it may be washed out in a moment, or taken within doors for domestic purposes.

Feeding.—To prepare stocks for winter, more particularly when breeding has been long discontinued, feeding cannot be too deliberately proceeded with. Gentle, continuous feeding is

the mainstay of the bee-keeper, as by it breeding is promoted, the food is stored without an undue proportion of water, through coming in slowly, and being quickly evaporated, the healthiness of the hive is thereby almost ensured.

Ventilation.—Notwithstanding Mr. Hunter's assertion, some time since, that quilts would only keep dry when covered with a close fitting roof, in which the said quilts would be excluded from the air, and capillary attraction of its moisture prevented, we most strongly recommend that a free current of air be allowed to pass through the upper chamber of a hive, to carry away the vapours which will have ascended through the quilt, and thus prevent condensation taking place within the upper story, and the consequent wetting of the whole hive. Sound roofs are of the utmost importance, but close-fitting, unventilated coverings play the very havoc with the inmates. Covering skeps with waterproof material, such as mackintosh, tarpaulin, or the like, instead of keeping them dry, will cause them to become sodden, and healthiness of the bees so ill-treated is out of the question.

Bar-frame Apiaries.—It will scarcely be necessary to inform advanced apiarians using bar-frame hives, that most of what has been said regarding the cleansing of hives and floor-boards applies equally to them as to the 'skeppers,' but the labour of uniting and equalising in the former will be very much lessened. Instead of driving out the bees, the combs can be removed, the bees brushed up with a feather, and left in their hives or the combs, and bees may be lifted out together comb by comb alternately from each of the hives to be united, and the bees shaken or brushed off into a separate receptacle to ensure a thorough mixing of them, after which the best of the combs, *i.e.* the newest for preference, and those containing fewest drone-cells, most honey pollen, and brood, should be placed in a hive, and having been flavoured with scented syrup, the bees should be admitted to them.

Syrup.—The cheapest and best form of bee-food with which we are acquainted is composed of five pounds of best loaf sugar and two pints of water, to be boiled together, a wine-glass of vinegar and a pinch of salt should then be added, and the whole boiled for a few minutes. A reverend correspondent has suggested, that owing to the various qualities in best (?) loaf sugars, and the uncertain quantity of lime in their composition, it would be safer (being less liable to recrystallization) to use Finzell's crystal sugar in lieu of the loaf: see page 47 of *Journal* for July last.

THE ALEXANDRA PALACE SHOW.

This, the third annual Show held under the auspices of the British Bee-keepers' Association, was held at the Alexandra Palace on the 15th, 16th, and 18th ultimo. and was, apart from other attractions, or rather the want of them, a splendid success. Our ideas of 'the prospects of the Show' were fully borne out by the result, for never before in England has there been such a grand display of hives, bee-gear, and apiarian produce. The Crystal Palace Show of 1874 produced a greater number of exhibits of hives, but at that time no standard of perfection had been raised, and there had been no comparison of ideas amongst hive inventors and judges; so that while each brought forth what he considered best, the awards, judging from later events, may be considered accidental. There having been fifty-seven hives exhibited in the various classes, it will be manifestly impossible for us in a limited space to describe the whole of them, and indeed, seeing the variety of opinions on their relative merits, we would greatly prefer that the inventors and adapters of the various exhibits should give us descriptions of them from their own standpoint, coupled with such drawings (or photographs) as may be necessary for explanation, which we would cheerfully engrave and publish. As may naturally be supposed, the awards of the Judges did not give universal satisfaction; but this could not have arisen from want of care on their part, for in Class 2, containing nineteen exhibits only, several hours were occupied by them in their deliberations, and only after the most careful comparisons were the prizes awarded.

Class 1, 'for the best hive for observation purposes, all combs to be visible on both sides,' produced three exhibits: Messrs. Neighbour and Sons with an eight-framed hive in the form of a cross, having taken first honours; and Mr. Brice Wilson being second with a six-framed unicomb of elegant make, with the combs fitted into a large frame which lifted all out at once. For appearance the latter had the advantage, but the impossibility of removing single frames without the necessity for raising the whole was thought an impediment, and caused it to take the inferior position.

In Class 2, 'for the best moveable comb hive (to include covering) for depriving purposes,' there were nineteen exhibits, and the premier award was given in favour of that produced by Mr. C. N. Abbott of Hanwell (editor of the *British Bee Journal*), price 30s. unpainted; but the silver medal was withheld in consequence of a rule that '*every hive or miscellaneous apparatus substantially the same as exhibited last year must have on its construction a distinct improvement to make it eligible for another prize; without such, and in case it should again be so judged as the best of its class, a certificate only shall be given, but the fact of the two adjudications shall be stated on it.*' We had hoped that the alterations made in its construction would have been acknowledged as *improvements*, but the Judges did not take our view of the matter, but recognised it, as, practically, the hive of 1875, stating in their award that 'This hive with slight alterations has now obtained *First Place* (certificate accordingly) for two consecutive years

See note, p. 14 of catalogue. Signed for the Judges, JOHN D. GLENNIE.' An improved feature as an adjunct to the hive might be found in the quilt arrangement, which will absolutely, with little care, prevent the crushing of bees; their first part, to lay upon the frames, being simply a sheet of linen such as outside window-blinds or bed-ticks are made of, over which is laid *sundry thicknesses of house-flannel*, affording excellent protection and ventilation, and capable of renewal without much cost or any loss, the old ones being equally useful for domestic purposes. The *alterations* in this hive shall be duly illustrated and described.

The second prize, the bronze medal, was awarded to Mr. Hooker, for a hive of the Woodbury type, with glass sides and affording facilities for telescopic extension on both sides, so that frames may be removed for slinging or otherwise while supers are being worked on the top. Its price is 50*s*.

The third award—a high commendation—was given to Mr. W. N. Griffin, for a hive containing some ingenious contrivances; and the fourth—a commendation—to Messrs. Neighbour and Sons, for an excellent hive with moveable end, and loose glazed dummy. Price, 46*s*.

In Class 3, 'for the best hive for use on the storifying principle,' there were ten exhibits, the first prize was awarded to Mr. James Lee, for a hive of similar construction to the celebrated 'Carr Stewarton,' minus the crown and adapting boards; the roof is also of a cheaper form, and the whole priced 22*s*. 6*d*. .The second prize was awarded to Mr. Hooker, for a splendidly finished hive, the principle of which consists in the mobility of its combs when the supers are on, and in the arrangement of its 'pile' of sections on the top. Price, 3*l*. 10*s*.

In Class 4, 'for the best hive on the collateral principle,' there were eight exhibits; the first prize for which was awarded to Mr. Hooker for a beautifully finished hive, the chief features in which are the ready facilities offered for access to the body of the hive, and for the addition of supers over the brood nest. In all Mr. Hooker's hives, the $\frac{5}{32}$-inch perforated zinc plays an important part, as by its use the entrance of the queen and drones to the honey-combs is prevented. The price of the hive is 5*l*. 5*s*.

The second prize (bronze) was awarded to Mr. Cowan, for a hive somewhat on the Giotto principle, consisting of ten central frames of the usual width, having on each side of them three wider frames for honey-comb. The price affixed is 35*s*.

The Giotto hive, exhibited by Captain Danyell, was commended for its simplicity and cheapness, but no prize was awarded.

In Class 5, 'for the most economical (best and cheapest) complete hive on the moveable comb principle for cottagers' use,' there were ten exhibits; and Mr. Lee was first with a hive of the Woodbury type, of the usual excellent workmanship turned out by him. In addition to the stock hive of ten frames, eight double sectional supers are 'given in,' and the hive is offered complete for 12*s*. 6*d*.; every frame, bar, and super section having impressed wax-guide.

The second prize was awarded to Mr. C. N. Abbott (Editor) for his Improved Cottagers' hive, price 10*s*.; and his Cottagers' hive at 17*s*. 6*d*., a fac-simile of that which took the first prize at Dundee was commended.

Class 6, 'for a hive on an entirely principle,' produced three exhibits, varying from 55*s*. to 95*s*., but as the Judges recognised no new principle no prize was awarded.

In Class 7, 'for the best skep for depriving purposes,' there were five exhibits, but the silver medal was awarded to Mr. Cowan, Messrs. Neighbour being highly commended.

In Class 8—'for the best stock of Ligurian bees'—Messrs. Neighbour and Sons obtained first prize by a walk over, there being no other exhibitor; and in Class 9, 'for the best stock of English bees,' they were also successful, a second prize to the only other competitor having been withheld.

In Class 10—'for the best species or variety of honey-bees (capable of cultivation in England) other than the Ligurian and English bee'—Messrs. Neighbour produced two exhibits, one of Cyprian, and the other of Carniolian or Austrian bees; but as the purity of neither was sufficiently self-evident, the prizes were withheld.

In the HONEY CLASSES:—

Class 11—'for the largest and best harvest of honey in the comb, from one stock of bees, under any system or combination of systems. The honey to be exhibited with or upon the hive that produced it (or its facsimile). To be attached thereto, a legibly written explanation of the method adopted, the locality, pasturage, dates of swarming and supering. To this may be added any particulars of his apiary which the exhibitor may be disposed to give, such as number of hives, average yield, &c.'—The first prize of 3*l*. went to Mr. T. W. Cowan, for a magnificent set of supers, weighing 120 lbs., beating for quality Mr. P. H. Phillips' second, 2*l*., with 131½ lbs., valued at 8*l*. 17*s*. 4*d*., a very low computation; the Rev. G. Raynor being third with a set of splendid supers, the weight of which was not appended. In this class an entry was made of an exhibit of 3 cwt., by Captain Martin, of Kings Somborne, Hants, but through some defect in the railway arrangement it did not appear. A splendid exhibit by Mr. Braddy, of Kelvedon, Essex, of great weight, was also delayed by railway *laches*, and arrived too late for competition or show and in a smashed condition.

In Class 12—'for the best exhibition of super honey from one apiary'—there were six entries, the first prize of 3*l*. going to Mr. Cowan for seven boxes and a vase, weighing altogether about 150 lbs., against the grand exhibition by Mr. Phillips of sixteen supers weighing about a hundred pounds more, causing considerable surprise. Mr. J. Walton, a cottager, was third, and Mr. W. Martin, also a cottager, was fourth with an extra award.

In Class 13—'for the best straw super of honey'—there was not much competition, there being seven prizes for eight exhibits, only four of which were awarded, to Mr. Phillips, Mr. Walton, Mr. Martin, and Mr. Free respectively.

Class 14—'for the best wood (or wood in combination with glass or straw) super of honey'—there were twenty-five exhibits, of which the

premier prize was given to Cottager Walton, for a magnificent exhibit, weighing 75 lbs., he beating Messrs. Wrigley, Cheshire, Cowan, Clark, Asbee, Gray (Rev.), and Godfrey; the remaining prizes being awarded in the order in which they are given, except that the last-named three were considered 'equal seventh.'

Class 15—'for the best glass super of honey'—produced eighteen exhibits, most of them of remarkable beauty, weighing from near a hundredweight to about a quarter of the same, and here the first prize fell to a big glass of the Manchester type, completely filled, but slightly discoloured with propolis. The second was taken by Mr. Sells, with the most beautiful exhibit, as regards quality and delicacy of appearance, in the whole Show; but it was in a globular glass with small opening, so that to obtain it for table use it would be necessary to cut the combs into small pieces (a grave objection to all such supers). The third was awarded to Cottager Walton, the fourth to Mr. Sells, the fifth and seventh to Mr. Plumridge, and the sixth to Messrs. Neighbour and Sons, the whole class being highly meritorious.

In Class 16—'for the best exhibit of run or extracted honey, in glasses of 5 to 10 lbs. each'—there were nine exhibitors of any number of glass jars, of all sizes and shapes, and honey of every conceivable colour and density; but the prizes were without difficulty awarded to Messrs. Thorne, Walton, and Neighbour and Sons respectively.

Class 17 was 'for the best exhibit of honey in supers or sections of supers, separable, and each of not more than 3 lbs. in weight, the total weight of each entry not to be less than 12 lbs.,' and for three prizes there were five exhibits, two by Mr. Cowan, who took first and second prizes with them, the third going to Mr. Walton, as another evidence of what an intelligent cottager can do.

In the COTTAGERS' CLASSES—'for the largest and best exhibition of super honey in comb, the property of one exhibitor, and gathered by his own bees'—(no entrance-fee) there were (Class 18) seven exhibits only for six prizes; not very flattering testimony to the success of the Association in its efforts to advance bee-culture amongst that particular body, and the prizes fell to Messrs. Martin, Walton, Freeman, Read, Baldwin, and Ellingham, in their respective order, the exhibits being highly creditable.

In Class 19—'for the best super of honey'—the number of exhibitors was increased to nine, the prizes, five in number, going to Messrs. Martin, Thorne, Walton, Baldwin, and Morgan respectively.

Class 20—'for the best exhibition of run honey in glass jars, containing 5 to 10 lbs. each,'—there were eight exhibitors for six prizes, which fell to the lot of Messrs. Walton, Ellingham, Thorne, Scorer, Baldwin, and Freeman. Thus, there were eleven cottager exhibitors, amongst whom seventeen prizes were distributed and six certificates, for in each class the first and second prizes were so accompanied. Taken as a whole the exhibition of honey was a grand one, such as was never before seen in the United Kingdom.

In the class (No. 21) 'for the best liqueur or wine made from honey, with recipe attached,' there was no entry; and in Class 22—'for the best sweetmeats made from honey, with recipe attached,' the prize (1*l.*) was awarded to Mrs. Jones for her exhibit (the only one) of cakes, of which honey formed one of the ingredients.

The Miscellaneous Classes were exceedingly well represented, although in Class 23—'for the best and largest collection of hives, bee furniture, bee gear, and apiculturists' necessaries, no two articles to be alike'—there were only two entries, each of which was of sufficient bulk and variety to form a huge apiary, and every article of excellent manufacture. The first prize (a silver medal) was awarded to Mr. James Lee, and a bronze ditto to Messrs. Neighbour & Sons for second place.

For the best drone-trap (Class 24) there were again two entries only, the award (a bronze medal) being given to Mr. Cheshire for his exhibit of last year—an award which we think an infringement on the rule laid down in that behalf and quoted elsewhere.

In Class 25—'for the best bee-feeder, the invention or adaptation of the exhibitor'—there were eight exhibits, all highly ingenious; but the award was given to C. N. Abbott for a tin bottle, with glass side, by which the feeding can be regulated, and the bottle refilled without removal. Messrs. Griffin and Poole each had a similar arrangement in glass, but the difference in price probably earned us the award.

In Class 26—'for the best method of quieting bees during manipulation'—there were three exhibits, including the celebrated Quinby smoker (American); but the prize was awarded to C. N. Abbott for a double bellows on the principle of those used by blacksmiths, giving a continuous jet of smoke while in use, and which will keep alight as long as the fuel lasts.

For the best and cheapest supers for general use in an apiary (Class 27), in which there were seven exhibitors, Mr. Hooker was first with his modification of the sectional supers, now so commonly used; Mr. Lee receiving a certificate of merit for a super divisible into sections.

In Class 28—'for the cheapest and best supers for producing honeycomb in a saleable form'—there were nine exhibits, all sectional; but the prize was awarded to C. N. Abbott for his arrangement of a set of sections, with glass bottom bars and glass slips between each, which compel the bees to build straight and symmetrical combs, each section being separable from the rest by aid of a penknife. Similar sections (filled with comb) were exhibited at the East of Scotland Show at Dundee, by Mr. Raitt, the hon. sec. (to whom we are indebted for the idea), and were considered the perfection of bee art.

In Class 29—'for the best honey extractor, portability, and cost to be taken into consideration'—there were thirteen exhibits, yet, curiously enough, the premier award (a silver medal) was given to the highest priced, and certainly not the most portable machine—'The Rapid'—which took first honours last year, and judging from the spirit evinced in our hive award (Class 2) there was not sufficient improvement to merit more than the

certificate intended for such second-year exhibits; the price of this machine is 3*l*. The second award (a bronze medal) was given to C. N. Abbott for 'The Little Wonder,' price 15*s*., and weighing about seven pounds; Mr. Cowan's 'Express Extractor,' price 55*s*., being highly commended.

Class 30 produced—'for the finest sample of pure beeswax in cakes not less than 1 lb. in weight'—nine exhibits, the prizes falling to W. Scorer, T. W. Cowan, and W. Martin, respectively.

In Class 31—'for any new invention calculated, in the opinion of the judges, to advance the culture of bees'—there were twelve exhibits, the only 'silver' award being given to C. N. Abbott, for an appliance for easily obtaining wax from old combs, the same being also a most useful machine for straining the honey from crushed combs. A bronze medal was deservedly awarded to Mr. O. Poole, for his nucleus hive for queen-raising, adapted from our suggestions in a late number of the *Journal*, and evidently intended to *cut out* the expensive Cheshire twin nucleus frame hive, price 12*s*. 6*d*., Mr. O. Poole's being about one-fourth of that sum. A Bronze Medal was also awarded to Mr. S. A. Sholl, for an ingenious idea for catching, or rather for enabling a bee-keeper to *snap up*, a queen without injury to her wings. It consists of a small bottle (?), with fittings so arranged that when it is placed over her majesty as she traverses a comb, she may readily be enclosed and transported in a visible state. A third Bronze was awarded to Mr. Hooker for a 'frame-making machine, which nails all the sides together at once,' an affair costing 30*s*, in which the nails must be first placed in holes ready-bored, and in which (if they do not bend) they may be squeezed home. This we consider a flagrant example of the too common error of rewarding ingenuity (of no common kind in this case) where practical utility is out of the question.

In Class 35—'for the best method of producing wax foundations for combs, either attached or capable of being easily attached to bars'—there were three exhibits: the awards, silver and bronze, being given to F. Cheshire and Messrs. Neighbour and Sons, for exhibits practically the same as those which took prizes in previous years, the former being for his method of painting wax-sheets on plaster moulds, and the latter for the now old-fashioned impressed plates.

In the Class Variæ (No. 36) there were twenty-one exhibits 'not for competition.' This was 'a separate class open for the exhibition of hives and apiarian appliances as used in other countries, as well as any utensils, obsolete or curious, which are likely to prove attractive and interesting to bee-keepers.' In this Mr. Camaschella exhibited a set of plates of the Anatomy of the Bee by an eminent Italian professor, price 26*s*. Mr. Hunter exhibited some wax queen-cells for the introduction of alien queens, some of Novice's (American) metal corners for frames, a frame put together with them, Novice's quilt, a universal feeder, and the Denmark Allotment Hive which took the Bronze Medal at the Crystal Palace, 1875. Parenthetically we may remark that this hive was last year exhibited in competition as a ten-shilling hive, and as such (for cheapness) it was awarded the medal, one of the conditions being that the exhibitor should supply any number at the price mentioned. Since then, however, it has been exhibited at almost all provincial Shows, and the price has been raised to *sixteen shillings*. Is this right? Mr. Hunter also exhibited some samples of 'fictitious honey made from the evaporated juices of the grape,' and some 'molasses' from the above, both of which tasted very much like treacle. The dome skep of last year (Danish) was also exhibited; and also Lovejoy and Isham's (American) sectional supers, all by Mr. Hunter. Mr. Poole exhibited a Bagster's Lady's Safety Hive (1836), very obsolete indeed, but none the less curious. Mr. Lemare showed a super, 'exhibited to show how rough a super bees will make use of.' Mr. Desborough exhibited a glass, open at top and bottom, with curious frame made by Wildman, the bee-master of the last century. Mr. Cheshire showed several specimens of his artificial comb foundation, with means of manufacture, which were highly interesting. The Hon. and Rev. W. Bligh exhibited a splendid collection of supers and sections taken from his hive at Abingdon. By a rule of the Show, the comb and honey were to be the production of 1876; and as Mr. Bligh had started some of his supers with clean white comb saved from last year, a practice highly extolled by all advanced apiarians, a keen sense of honour forbade his exhibiting the beautiful results in any of the classes in competition in the usual way. So excellent and admirable, however, was the pile of supers, that the Judges nominated it for a Silver Medal; (as they were afterwards informed, in error.) The last exhibit in this class was a bee-trap formed of the awns of bearded grass, the invention of our junior, and from its effectiveness, it having been well tried, we have little doubt but that it will be better recognised in future.

The counter for the sale of honey was well stocked on all the days with glasses of honey, both in and out of the comb, and numerous sales were effected. A fair number of the exhibits of honey was also disposed of, and hives and apparatus were more eagerly sought and purchased than at either of the previous shows, giving evidence that bee-culture is steadily advancing.

There was the usual desire to witness the promised exhibition of manipulation with live bees, but the general feeling in regard thereto was one of disappointment. But for the exertions of those who did *not* promise to take part in them, including Messrs. Desborough, Symington, Cowan, Hughes, Griffin, Walker, and others, the exhibition would have been poor indeed. For the second time the stocks chosen for manipulation were found to be affected with foul brood, and consequently as stocks, after all the trouble of transferring, they were valueless and filled the hives into which they were placed with the dire infection, causing great loss to the Association. Messrs. Carr, of Newton Heath; Tite, of Yeovil; Desborough, of Stamford; Symington, of Market Harborough; and Hughes, of Ealing, were conspicuous in explaining the various phases of bee life and the economy of the hive; and to those we have mentioned, aided by our junior, was mainly due the success of the operations. Mr.

Hunter, from his experience of former meetings, rendered very efficient service to the Hon. Sec., whose exertions in behalf of the Association were beyond all praise; but in the operating garden Mr. Hunter, as manager, was certainly not happy, and Mr. Cheshire did not take any part in the operations.

The arrangements by the Alexandra Palace Company were not the most perfect that we have seen, and but for the energy of Mr. Hunter, who volunteered to superintend the erection of the tables, the whole affair would have been a muddle. As it was several of them were not erected until near one o'clock on the day of the Show, and the judging was consequently delayed until long after the public were supposed to have had *entrée* thereto. Much disappointment was consequently felt by the visitors, and not a few vented their irritability on the Committee, who were simply powerless in the matter. The catalogues also, printed by the Company's printers, were very late, causing great hindrance in the staging; and the list of awards was not forthcoming until the afternoon of the second day. These failures, coupled with the poor attendance of visitors, as compared with that always to be found at the Crystal Palace, were souring to the temper, and caused many to hope that any future meeting of the kind would be located in a more favourable position.

To the Judges the highest praise is due for the very great care exercised before coming to their decisions, and although, as is human, we do not in all cases entirely coincide with the views taken by them, we know what is meant when cricketing umpires say, 'Out!' a lesson too often ignored in competitions of this kind, but which, if observed, would make their task far more pleasant and would render such meetings more friendly and with fewer causes for after-regret. The Committee worked hard in the cause, and many of the Vice-Presidents were conspicuous in their efforts to improve the occasion: but the President, as usual, did not put in an appearance.

WHAT A COTTAGER CAN DO.

In our report of the Alexandra Palace Show we made special mention of Mr. John Walton, of Honey Cott, Weston, near Leamington, and here present our readers with an abstract of his exhibits and prizes. His honey weighed 401¼ lbs., and his prizes amounted to 9*l.* 17*s.* 6*d.* Surely success like this ought to stimulate other cottagers to master the details of a system which throws gold and silver into the lap, almost without effort. We trust that every paper in the kingdom will copy this statement as a stimulus to cottage industry.

Class 12, 3rd prize, 10*s.*—1 box, 34 lbs.; 1 box, 9 lbs.; 1 glass, 10 lbs.; 1 glass, 8 lbs.: 1 glass, 5 lbs.; 1 glass, 4 lbs.; total, 70 lbs.

Class 13, 2nd prize, 30*s.*—1 straw super, 20 lbs.

Class 14, 1st prize, 40*s.*—1 super, 75 lbs. net.

Class 15, 3rd prize, 20*s.*—1 glass super, 34¼ lbs. net.

Class 16, 2nd prize, 12*s.* 6*d.*—3 glasses of honey, 20 lbs. net.

Class 17, 3rd prize, 10*s.*—In sections, 14 lbs. net.

Cottagers' Classes.—Class 18, 2nd prize, 30*s.*—1 wood and glass super, 32 lbs. net; 1 bar-frame super, 23 lbs. net; 1 ditto, 16 lbs.; 1 straw super, 17 lbs.; total 88 lbs.

Class 19, 3rd prize, 15*s.*—1 glass super, 25 lbs. net.

Class 20, 1st prize, 30*s.*—Run honey, in glass jars, 55 lbs. net.

THE LOST POEM.—'THE BEES.'

We trust our plan of bringing Evans's long-lost but delightful poem before our readers will meet with approval. Knowing the impatience with which the text of the poem is waited for, we in this *Journal* republish the first book, and next month propose to give the preface and notes, and if possible the Additional Notes to the same, which are specially valuable. The entire work supposed to contain four books contains only three, the fourth never having been published, if written, and the whole will be completed within the compass of the present volume of the *British Bee Journal*.

THE COMING WORCESTERSHIRE SHOW.

We would remind our readers that this, the last Show of the season, will take place on the 16th and 17th of the present month; and, as will be seen by the advertisement in our last number, the prizes offered are well worthy of competition. The Exhibition will be held in connexion with the autumn Show of the Worcestershire Agricultural Society; and we trust bee-keepers will rally round, and show that they appreciate the opening offered them for placing apiculture in its place beside the sister industry on so important an occasion.

The Show will be held at Worcester, and all particulars can be had of Harvey Wall, Esq., Rashwood, Droitwich, the hon. sec. to the Bee Association.

OUR AMERICAN COUSINS.

On page 226 of the American *Bee Journal* we are taken to task in a friendly way on account of a foot-note respecting bees dining in roses and peonies. The foot-note declares the idea to be 'a poetic fancy, but not fact;' and for this *we* are held responsible, although every word of it is by the author of the poem. We are perfectly assured that bees do visit roses, and peonies too, when their petals are loose enough to allow of entry, and the odour not too overpowering. In wild roses—the common dog-rose, for instance—the bees really revel, gathering both honey and pollen. In Nutt's list of bee-flowers, copied by Langstroth, 'roses (single)' are mentioned, but peonies do not find a place. Our friends will find that every

foot-note of *ours*, under others' productions, will have the letters '*Ed.*' at the end of it.

Again, on page 241 of same journal, in a footnote to an article copied from the *London Cottage Gardener* on 'Ligurian Bees,' the Editor asks, 'Is it possible that the different bee-keepers of England are all agreed on the equal value of the common black bee with the Italian, except those who have Italian bees or queens to sell? We would like to ask the *British Bee Journal* what proportion of those who keep bees for the profit of the honey, prefer the black bee? Brother Abbott, please tell.'

The barefaced libel contained in the article referred to is about on a par with the insane assertions made some time since by a positivist named Heddon at the Michigan Beekeepers' Association (December, 1875), denouncing bee-keeping as a snare and a delusion, kept up by editors of bee journals, and hive and bee-furniture makers, for their own special profit.

The man of many assertions who foments the tirade in England against Ligurian bees, is also deadly opposed to bar-frame hives, and indeed to everything that savours of improved bee-culture honestly carried on. He teaches people how to fill 'shoddy' supers with the contents of the hives called after his own name, than which no others in his opinion ought to exist, and from his dogged persistence in his declarations he undoubtedly believes he is right; and we are content to allow him to enjoy his opinion, and to lead as many others as choose to follow him. The tide, however, sets in another direction, and improved hives, improved methods of management, and improved bees, are the order of the day; and for results we will point to the glories of the late Alexandra Show, at the piles of supers, tier upon tier, that dazzled the eye with their beauty, at the magnificent exhibits of the cottagers who, having deserted the 'Pettigrew' system, have come into light and celebrity by aid of the bar-frame principle and the Ligurian bee. Can anything in the annals of the skep compare with the results obtained by the bar-frame principle and Ligurian and hybrid bees in the hands of Cottager Walton, as exhibited at our late show? Has anything in the way of supers ever been produced from skeps which can compare honestly with the magnificent exhibits of Mr. Cowan, in 1874, 1875, and again this year? The boast of the old system is, that sometimes swarms will rise to a hundred pounds weight, which system necessitates the breaking up of the stocks to obtain the honey; but the glory of the bar-frame principle is that a hundred pounds can be taken in supers, forty to fifty or more pounds extracted from the stock-hive, and no harm done.

Undoubtedly the old skep and its advocates have done the country immense service with the black bee, and in the hands of those who are content 'to drive slowly,' they will, doubtless, retain a place; but as a matter-of-fact, the bar-frame hive and the Ligurians are driving them out of use, and presently black bees, as a distinct variety, will have ceased to exist. We are perfectly sick of the subject; there will always be some who will rail against what interferes with their own pet ideas, and there will be those who will not see advantages which proclaim themselves trumpet-tongued throughout the world; others that having made an assertion, having SAID a thing, will spend the remainder of their life in sticking to it, be it ever so wrong, and after some experience with such, we think wise men will *let them alone*.

CALEDONIAN APIARIAN AND ENTOMOLOGICAL SOCIETY'S SHOW AT GLASGOW.

This Society's second grand Show of honey, hives, live bees, &c., was opened in the Kibble Place, Glasgow, on the 6th ult. The entries for the various prizes were numerous, and the display of honey was the largest and finest that had ever been seen in Scotland.

The greatest attraction to the public at large, however, was the exhibition within the glass observatory hive of live bees, all busily engaged at work making and filling cells; outside there was a row of straw skeps, brought there for manipulation purposes, and Messrs. Abbott and Wilkie showed how easily bees can be handled by the scientific bee-master.

The judges of honey were Messrs. Abbott, Shearer, Saunders, Findlay, and Anderson; and owing to the beauty of the produce brought to the Show, they had great difficulty in deciding the prize-takers. The hives and appliances were judged by Messrs. Shearer and Findlay, assisted by the 'Renfrewshire Bee-keeper.'

During the afternoon the Rev. Mr. Findlay delivered a most instructive lecture on the History of the Honey Bee and the great advance bee-keepers had made within the last ten years throughout Great Britain. The following is a list of the awards:—

CLOVER OR FLOWER HONEY.—For the largest display of honey and honey-comb (either dale or moorland, or both):—1st, James Anderson, Dalry; 2nd, Wm. Sword, Falkirk; 3rd, Wm. Thomson, Blantyre.

Exhibition of sectional supers from one apiary, not above 5 lbs. each:—1st, Wm. Thomson; 2nd, John Muir, Fenwick; 3rd, Thomas Peden, Blantyre.

Two supers of clover or flower honey, above 20 lbs. each:—1st, Wm. Templeton, Dumfries; 2nd, John Alexander, Fenwick; 3rd, Archibald Montgomery, Kilmaurs.

Single supers:—1st, John Muir, Fenwick; 2nd, James Baillie, Kilmaurs; 3rd, Archibald Montgomery.

Super above 12 lbs.:—1st, Wm. Kerr, Stewarton; 2nd, John Hutchison, Dumfries; 3rd, Thos. Peden.

Super, straw, wood, or glass, any size:—1st, Wm. Templeton; 2nd, John Hutchison.

Best sample of run or extracted honey, not less than 7 lbs.:—1st, Archd. Montgomery; 2nd, Archd. Montgomery, jun.; 3rd, Wm. Sword, Falkirk.

Heather honey, two supers, above 20 lbs.—1st, Wm. Sword.

Single supers, above 20 lbs.:—1st, Wm. Sword; 2nd, James M'Gill, Arran; 3rd, James Crawford, Lamlash.

Supers above 12 lbs., and under 20 lbs.:—1st, John Hutchison; 2nd, James Crawford; 3rd, John Armstrong, Bannockburn.

Super, straw, wool, or glass:—2nd, Hugh Crichton, Gourton; 3rd, Wm. Sword.

Sample of run or extracted honey, not less than 7 lbs.:—1st, W. Sword; 2nd, J. M'Gill; 3rd, J. Anderson, Dalry.

Comestibles.—Cake made with honey:—Wm. Sword.

Bar-frame hive with super:—William Thomson and C. N. Abbott, London, equal.

Wax guide-sheets:—1st, James Baillies; 2nd, A. Montgomery; 3rd, A. Montgomery, jun.

Two samples of wax in cakes, of not less than 1 lb.:—1st, A. Montgomery; 2nd, W. Sword.

Miscellaneous.—Best and largest selection of hives, bee-furniture, bee-gear, and apiculturists' necessaries:—C. N. Abbott.

Best fee-feeder:—1st, C. N. Abbott; 2nd, W. Thompson.

Cheapest, neatest, and best super for producing saleable honey:—1st, C. N. Abbott; 2nd, Wm. Thomson.

Best honey-extractor:—C. N. Abbott.

Any new invention to advance bee-culture:—C. N. Abbott.

Best collection of objects connected with apiculture:—R. J. Bennett, Glasgow.

Best chemical test for detecting spurious honey:—Wm. Thomson.

Ladies' Prize.—For the best-executed group of wax flowers:—1st and 3rd, Mrs. Yeo, Greenock; 2nd, Mary M'Call, Pollokshields.

Too much cannot be said in favour of Messrs. Bennett, Wilkie, Sword, and Thomson, for the great energy displayed in getting up so splendid a show. The brunt of all such exhibitions usually rests on the shoulders of three or four enthusiasts, and in this case the Association has found willing workers also. So great disinterestedness deserves distinction, and in this instance it has been honestly achieved.—Ed.

EAST OF SCOTLAND SOCIETY'S FIRST EXHIBITION.

The first Exhibition of this Society was held in the south-east corner of the Artillery Hall, Dundee, and has been a great success. The golden opportunity of an International Horticultural Exhibition where above 1000*l.* in prizes was offered drawing together vast crowds from all parts of the kingdom, was seized by the Society and heartily welcomed by their horticultural patrons. Exhibits poured in to the value of above 150*l.*, rarely illustrative of the progress of our favourite pursuit. There were 140 lots exhibited. The largest harvests of super combs from one hive ranged from 34 lbs. of dark-coloured irregularly built comb to the splendid exhibit of the Secretary, 103½ lbs. in net weight, pure in colour, regular in build, and as well sealed and dry as could be. This exhibit alone sold for upwards of 8*l.*, while the heaviest skep, although by the rules free from brood and obtained without destroying the bees, was with difficulty sold for 45*s.* This skep was, however, a magnificent specimen of its kind, some 20 inches by 16, and weighing net 95 lbs. Doubtless the skep system is doomed in these parts. Skep supers were also a miserable failure. The largest failed to find a purchaser at 50*s.*, and yet represented the work of a stock for the whole season. The finest class in the show was that of sectional supers—the supers of the future. All that took prizes were of the form designed by Mr. Stewart, Arbroath: each section 12 to 14 inches in length, 2 inches broad, and from 3 to 5 inches deep. These are wrought with glass dividers, producing combs perfectly straight. The improvement adopted by Mr. W. Raitt of a glass bottom bar instead of one of wood gained for him the first prize in this class,—his super consisting of ten sections, as regular and similar to each other as ten moulded bricks. All exhibits of this class were eagerly bought up by the dealers at good prices, as they at once perceived the advantage of being able, without cutting, to sell comb in large or small packages, according to the wish of their customers. Mr. Stewart also exhibited in this class an elegant cabinet, designed for the storage of the sections, and showing off their beauties to great advantage. Among other interesting exhibits were two unicomb hives stocked with Ligurian bees: a nest of wild bees under a glass shade; and a skeleton hive, exhibited by Mr. Steven, Arbroath, consisting of the round crown board of a skep with the sides cut away, leaving the combs suspended, and surmounted by a pretty glass super full of snow-white comb. This last exhibit, prepared by a humble yet intelligent man, is only one of the many evidences of the intense interest excited among the cottagers in regard to the Show. Many of them got up at 3 o'clock in the morning, so as to get their work finished in time to see the Honey Show by the afternoon, and many came from great distances.

The general results are hopeful. No fewer than 32,000 persons visited the Show during the three days. The Honey department was always crowded: indeed, it was remarked on all sides that it was the most attractive part of the whole Show. So great was the pressure on the last day, that at one time it was found necessary to remove the observatory hives to the open court and station policemen to keep the crowds out. Thousands of questions were asked by the visitors and answered by the leading prize-takers, the judges, and other skilled apiarians. The humane system was admitted by many a beeicide to be the best after all. Bar-frame hives, Ligurian queens, and improved appliances, were eagerly inquired after. Many new names were added to the Society, and several to the *British Bee Journal* fraternity. It was very gratifying to hear the remark of one enthusiast while addressing a crowd of eager listeners: 'This Show, these wonderful results, are a monument to Mr. Abbott and his *Bee Journal*.'

It may be added that almost all the honey and other exhibits were sold at fair prices before the close of the Show, and one gentleman at least went home with a gold watch and chain in his pocket, purchased with his profits from bee-keeping of upwards of 20*l.* in the memorable season of 1876.—A Subscriber.

The following is the prize list taken from a local paper:—

Largest and best harvest of super honey, the produce of one hive:—1st, Wm. Raitt, Liff, 103½ lbs; 2nd, Robert Cowan, Brechin, 74½ lbs.; 3rd, John Lorimer, Broughty Ferry, 59 lbs.

Heaviest and best single super, the produce of one hive:—1st, R. Steele, Fowlis, 49½ lbs.; 2nd, Mrs. Dick, Kirriemuir, 41 lbs.; 3rd, D. Robertson, Fettercairn.

Best super in wood or wood and glass:—1st, James Glen, Arbroath; 2nd, W. Raitt, Liff; 3rd, James Strachan, Farnell.

Best sectional super over 20 lbs., combs separable, and not exceeding 4 lbs. each:—1st, W. Raitt, Liff;* 2, D. Ramsay, Baldovie; 3rd, John Stewart, Arbroath.

Best super in glass:—1st, W. Raitt, Liff; 2nd, Alex. Watson, Milnathort; 3rd, G. Paton, American Muir.

Best super in straw:—1st, A. Watson; 2nd, Thomas Waters, Milnathort; 3rd, J. Alexander, Morgan Hospital.

Best two combs in bar frames:—John Davie, Waulkmills, Arbroath.

Heaviest and best skep, must be free from brood, and obtained without destroying the bees:—1st, John Christie, Waulkmills, Arbroath; 2nd, R. M'Gregor, Inchmarlo.

Six pounds of run honey in show-glass:—1st, Mrs. Stewart, Letham Mill, Arbroath; 2nd, T. Waters; 3rd, R. M'Gregor.

Two pounds of wax:—1st, Wm. Raitt, Liff; 2nd, John White, Falkland; 3rd, John Cunnison.

Six sheets of impressed wax-comb foundations:—No entries.

Messrs. Scrymgeour's Prize:—1st, John Stewart.

Bar-frame hive complete, with floor-board, super, and roof, price not over 20*s.*:—1st, C. N. Abbott, Hanwell, London; 2nd, R. Steele, Fowlis.

* Nothing we have ever seen in sectional supers could surpass the beauty and perfect finish of these.—Ed.

Cheapest bar-frame hive, suitable for cottager, with floor-board and roof:—1st, R. Steele; 2nd, C. N. Abbott.

Best hive on the storifying principle, price not to exceed 20*s.*:—No entries.*

Best straw skep and super:—No entries.

Best and neatest observatory or unicomb hive, to be exhibited stocked with bees:—1st, James Lorimer, West Port, Dundee; 2nd, W. Urquhart, Esq., Rosebay, Broughty Ferry.

The most beautiful Ligurian bees, to be exhibited with their queen in glass hive:—Equal, James Lorimer and W. Raitt.

A Certificate of Merit was awarded by the judges to E. Bailey, The Pillars, Dundee, for an excellent collection of honey exhibits.

We cannot too strongly recommend the workmanship of the hives manufactured by Mr. Steele, of Fowlis, who had already adopted most of our improvements and run us hard for prizes. He will in future make hives of our pattern, at the cheapest rate, and we have every confidence that he will give satisfaction throughout the East of Scotland.—Ed.

BEE SHOW AT HUNTLY, ABERDEENSHIRE.

A novelty, in the shape of a bee-keepers' Show took place last week at Huntly in Aberdeenshire. Prizes were offered for the best and heaviest supers, for the neatest filled supers, for glass supers, best samples of run honey and wax. In the hive and bee classes, prizes were offered for the best made straw skep, bar framed hive, honey extractor, and for the best observatory hive of live bees. The result was completely successful, the Show being visited by large numbers.

THE BEE AND HONEY SHOW AT WOLVERHAMPTON.

This Show was held on Monday, August 28th, at the Molineux Grounds, under the auspices of the newly-formed Wolverhampton and Staffordshire Bee Association, and under the patronage of the Countess of Dartmouth, who was however prevented from attending by a prior engagement. The weather was very unfavourable, which accounted for the scanty attendance, not more than 300 people having passed through the turnstiles up to the close of the Show. Still (we quote the *Wolverhampton Chronicle*, with corrections), 'for a first venture the Exhibition was a very creditable one, the exhibitors being numerous, and embracing all classes, from the gentleman of position to the humble cottager; and some very fine hives of honey were shown. Of the latter, Mr. J. E. Briscoe, of Albrighton, sent (not for competition) some splendid boxes, or supers, of virgin honey, the produce this year of only two stocks of bees, and weighing 144 and 67 lbs. respectively as the produce of each stock. These lots—the first taken in supers from one hive alone, and the second a box filled by a stock which had previously swarmed—show what can be done in a good honey year like this under skilful management. It may interest, as well as astonish, those who do not know what bees can do, to learn that the whole of the 144 lbs. were made in a month. As it is calculated that bees consume 20 lbs. of honey in making 1 lb. of wax, some idea may be formed of the immense quantity of honey which Mr. Briscoe's bees must have gathered in such a short time in order to make and fill 144 lbs. of honey-comb. Another exhibit was the produce of a virgin swarm hived so recently as the 6th of July. This is a remarkable instance of the great yield of honey this year, and is almost without parallel in the annals of bee-keeping.

'Mr. G. Lewis, of this town, who had taken an active interest in the getting up of the Exhibition, showed an observatory hive filled with bees, and including a newly-imported Italian queen, and in which the whole mysteries of the internal work of a beehive were fully exposed to view. The Exhibition also included the process of honey-slinging with the "Little Wonder," an invention by which the honey is obtained without damage to the comb or injury to the bees, and illustrations of driving and transferring live bees from ordinary straw skeps into bar-frame hives, which were exhibited by Mr. J. Abbott, son of the editor of the *Bee Journal*. Mr. R. Aston, of Newport, Salop, and Mr. C. N. Abbott, showed a multitude of articles of bee-furniture and apparatus. Hives of several different patterns were to be seen, among which was remarkable a polished mahogany hive, of exquisite finish, the work of Mr. Young, of Horninglow, who exhibited it. Owing to the unfavourable weather which prevailed during the greater part of the afternoon, the attendance was not very large, but all present seemed much interested in what was shown to them, and in the explanations that were given at intervals by the Rev. J. D. Glennie, Vicar of Croxton, Eccleshall, who takes great interest in bee-culture. A sum of about 10*l.* was distributed in prizes as follows:—

Class 1.—For best bar-frame hive:—Mr. C. N. Abbott, Hanwell, London, 10*s.*

Class 2.—For the best exhibition of honey in comb, the produce of one apiary:—No entry.

Class 3.—For the best exhibition of super honey in comb, the produce of one stock:—1st, Mr. C. H. Greaves, Stafford, 1*l.*; 2nd (*a*), Mr. Withnall, Rangemore, 10*s.*; 2nd (*b*), Mr. Storer, Brewood, 10*s.*

Class 4.—For best super of honey in comb:—1st, Mr. J. Clevere Jones, Market Drayton, 1*l.*; 2nd, Mr. Young, Horninglow, 10*s.*; 3rd (*a*), Mr. L. K. Parker, Eccleshall, 5*s.*; 3rd (*b*), Rev. J. W. Napier, Stretton, 5*s.*

Class 5.—Largest and best exhibition of run honey in glass vessels, produce of one apiary:—1st, Rev. A. Corbet, Adderley Rectory, 1*l.*; 2nd, Miss Bagnall, Shenstone Moss, 10*s.*

Class 6.—For best sample of run honey, in glass vessels, not less than 5 lbs.:—1st, Messrs. Napier and Nightingale, Stretton, 15*s.*; 2nd, Mr. Heape, Brewood, 10*s.*

Class 7 (cottagers only).—For best super of honey in comb:—1st, Mr. J. Elliott, Whitmore Reans, 10*s.*; 2nd, Mr. Withnall, Rangemore, 7*s.* 6*d.*; 3rd (*a*), Mr. J. Martin, Rugeley, 5*s.*; 3rd (*b*) and 4th, Mr. P. Fowler, Lilleshall, 5*s.* and 2*s.* 6*d.*

Extra Class.—Mr. S. Brassington, Buddy Lea, Betley, for glass octagon hive of bees, 10*s.*; Mr. Whitehouse, Essington, for virgin produce, 5*s.*

'The Cottagers' Class was well filled, the whole of the exhibits being of such merits that the judges deemed themselves perfectly justified in awarding two extra prizes. The judges were the Rev. J. D. Glennie, Vicar of Croxton, Eccleshall; and H. Spencer, Esq., Markland House, Moseley. After the Show a meeting of bee-keepers was held at Molineux House, the Rev. J. D. Glennie in the chair. The names of several gentlemen were added to the Committee, and arrangements were made for carrying on the work of the Wolverhampton and Staffordshire Bee Association next season. It was unanimously determined to hold a Show at Wolverhampton next year.'

It may be added to the above that, in addition to the virgin produce (box and super) mentioned above, Mr. J. Martin took the 3rd prize in the Cottagers' Class with a glass (only partially filled) of heather honey, the produce of the cast of a swarm of 1876.

BEE AND HONEY SHOW AT SHERBORNE.

A most successful Bee and Honey Show was held at Sherborne, Dorset, on Wednesday, August 30th, in connexion with the local Horticultural Society, the generous owner of the historical castle having, as usual,

* Singular for Scotland, that boasts the far-famed Stewarton stonilver.—Ed.

placed his splendid grounds at the disposal of the Committee for the occasion. Bee-keepers are numerous in Dorset, and several clergymen and other gentlemen have for years past endeavoured to induce the cottagers to deprive their bees of their surplus stores without destroying the busy little workers. Their efforts have met with some success; for at several of the local Flower Shows dishes and supers of comb taken on the humane system are annually exhibited; but smotheration is still the rule, and deprivation the exception. For a considerable period the Committee of the Sherborne Floricultural and Horticultural Society have offered small amounts for the best show of honey; but the exhibitors were so few in number that it was contemplated to omit the awards from the list. Indeed, last year this was partly carried out, the prizes being placed amongst the extras at the last moment. Mr. C. Tite, of Yeovil, appealed to several supporters of the Society to offer a little more encouragement to bee-keepers, and the suggestion was entertained in a very friendly spirit by Mr. Ellis, the genial and hon. Secretary, and Mr. L. H. Ruegg, of the *Sherborne Journal*. After considerable discussion and much opposition, the Committee were induced to give bee-keepers one more trial, and the result has been most encouraging.

After the ordinary prize list had been printed a circular was issued, announcing that the Committee were 'anxions to encourage bee-keeping amongst the cottagers of the district, and to aid in abolishing the annual destruction of bees, by showing the advantages to be derived from improved methods of bee-culture.' Mr. Abbott was communicated with, and readily promised to undertake to get up a show of hives, honey, and apparatus, if the Committee would leave the matter in his hands, and to show local apiarians how to drive, transfer, &c., by repeating the manipulations which had excited so much interest at the Crystal Palace and many other places. As the Show was a novelty, and the managers were not overburdened with funds, the appeals for assistance were responded to in the most liberal manner by the hive-makers and bee-keepers; and on the morning of the Show several waggon-loads of goods arrived. The principal contributors of hives and apparatus were:—Mr. C. N. Abbott, Hanwell; Mr. James Lee, Bagshot; Mr. J. Hunter, Ealing; Mr. Rusbridge, Sidlesham; Mrs. Pagden, Alfriston; Mr. Sadler, Sonning; Mr. J. King, Newport-Pagnell; Capt. Martin, Kings-Somborne; Mr. Obed Poole, Uphill; and Mr. Isaac Hale, of Horncastle. In addition to the numerous local exhibitors of honey, Mr. C. Lewis, of Taunton, who took a prize at Weston-super-Mare; Mr. H. Ellingham, of New Heston; Mr. George Childe, Marlborough, Wilts; Captain Martin also sent excellent supers. There was a fine display of honey in the comb, a wide counter—the whole length of the tent—being literally crowded. The exhibits included numerous straw supers of various sizes, Lee's Crystal Palace supers, Abbott's sectionals, bell-glasses, boxes, &c., all of which were well filled and sealed.

The first prize was awarded to several beautiful supers, with glass sides and tops, fitted into neat gilt and oak mouldings, sent by the Rev. Prebendary Warre, of Bere Regis, Blandford, the maker of the supers (which we intend to refer to more fully in a future number) being Mr. Robert Manfield, the rev. gentleman's butler. Some of these were worked on a common flat-topped straw hive, the stock in which gave 52 lbs. 10 ozs. of pure super honey, and was left with a store of 40 lbs. Others came from a bar-frame hive, which yielded 68 lbs., although the store left for the bees' winter use weighed 40 lbs.

Thanks to Messrs. Abbott, Poole, and Hunter, the various kinds of apiarian appliances were well represented, and the last-named gentleman also sent an observatory hive stocked with Hungarian bees. There were several glass hives on the counters, and these were sources of unfailing interest to those to whom the bee world had hitherto been as a sealed book, the explanations given being eagerly listened to.

Honey extractors were exhibited by Mr. Abbott and Mr. King, and excited a considerable amount of attention.

The chief source of attraction, however, was the operations carried on in the inclosure at the back of the tent, and which are thus referred to in the *Western Gazette*:—

'Some wonderful manipulations were performed by Mr. Abbott and his son, Mr. James Abbott, in an uncovered tent placed at the back of the one containing the exhibits, and divided from it by a screen of gauze. To those who have been in the habit of approaching their bees behind the shield of a fine veil and India-rubber bee-gloves, Mr. Abbott's prowess must have been literally astonishing. In the coolest manner possible he turned up old straw skeps which were crowded with bees, and drummed the sides until the inmates had rushed into another skep placed over the one inverted. He then cut open the skep upon which he was operating, took out the combs (brushing off such bees as remained upon them), extracted the honey, and tied the combs into the bar-frames of the new hive to which the bees were to be transferred. These operations were repeated as frequently as the showers of rain and the crowding of spectators would permit. Such was the anxiety to witness the proceedings that scores of persons found their way within the enclosure where bees were flying about by thousands, thus annoying the experts and obstructing the view of those who remained in the tent. Mr. Abbott's courage and skill evidently had a wonderful effect upon his audience, and the aid of the police had frequently to be invoked in order to keep back those who wished to intrude. Within the tent not a single sting was reported, and only one or two persons in the outer enclosure were unfortunate enough to challenge the bees to single combat.'

The awards were made as follows by the Rev. J. F. Rooke, of Rampisham, Dorchester, and the Rev. G. C. W. Skene, of Fontmell, Shaftesbury:—

For the most economical, best, and cheapest complete hive on the moveable comb principle:—1*l*., Mr. C. N. Abbott, Hanwell; extra prize, Mr. James Lee, Bagshot.

For the best and cheapest skep, or straw hive, for depriving purposes:—10*s*., Mrs. J. W. Pagden, Alfriston, Sussex.

For the best and cheapest supers for general use in an apiary:—10*s*., Mr. C. N. Abbott and Mr. J. Lee, equal; highly commended, Mr. Manfield, Bere Regis, Blandford.

For the finest sample of pure bees-wax, the produce of 1875 or 1876, in cakes not less than ½ lb. each:—5*s*., Captain Martin, Kings Somborne, Hants; 2*s*. 6*d*., Mary Dunford, Lillington.

For the best honey in comb, and not less than 1 lb.:—15*s*., Rev. Prebendary Warre, Bere Regis; 10*s*., Mr. J. Brown, Maiden Newton; 5*s*., Captain Martin and Mr. C. Lewis, Taunton, equal.

Special prize for honey in the comb exhibited by cottagers:—10*s*., Mr. W. Pavitt, Barwick, Yeovil; 5*s*., Mr. H. Ellingham, New Heston.

Mr. C. Tite, of Yeovil, writes:—'I shall be glad if you will allow me to thank those of your readers who so kindly sent hives, apparatus, &c. to the Bee Show held at Sherborne on August 30th. There was really no inducement in the way of prizes, and many gentlemen who contributed did so simply with the hope of encouraging and instructing local bee-keepers. Particulars respecting the preliminary arrangements were obtained from Mr. J. G. Desborough, of Stamford, who not only answered all the questions asked, but very kindly took the trouble of giving the fullest information respecting the Show held at Stamford last year. Thinking the details will be interesting and useful to secretaries of county associations, I have obtained Mr. Desborough's permission to publish them, and shall ask you to insert them in a future number, as they contain numerous hints which will be very acceptable to gentlemen who think of getting up local shows next year.'

THE EXHIBITION OF THE LINCOLNSHIRE BEE-KEEPERS' ASSOCIATION AT GRANTHAM.

Grantham took up the running in her exhibition last year, and seems determined to maintain her well-merited honours. A very successful show last year has been followed by one equally good this year. This year's show differed from last in this respect: last year we had practical instruction in bee manipulation; this year, having an indoor show, that part was omitted, though very interesting, as all who saw it will remember.

Firstly, we had a fine day, thereby enabling our friends at a distance to avail themselves of the opportunity of visiting the show without dreading or experiencing any inconvenience from inclement weather: and I believe very few lovers of apiculture in the neighbourhood were absent, unless, like the worthy president, they were prevented by affliction—personal, or of that of friends.

The show was well attended, and deservedly so. There were all kinds of hives, slingers, supers, honey, and bees. The hives—and of course we mean bar-frame hives—were simple and inexpensive, eminently practical and practicable; the slingers were simple and efficient, especially the 'Little Wonder,' for all who saw it were struck with its simplicity, and all present who had used it—and they were many—bore testimony to its efficiency. One of its greatest merits is that it does not chill the brood, as other slingers are said to do; moreover it is very cheap—fifteen to seventeen shillings, cannot possibly get out of order, and is easily cleaned in a few minutes.

Of supers there were many, both empty and well filled, large and small; the sectional ones seem to be most in favour at present, but most bee-keepers have their special favourites, and praise them accordingly (for my part, I prefer the Slinger to them all). If the honey is intended to be taken in the comb, there is no doubt that the sectional supers are the best and cheapest, and the honey is produced in the most convenient form for the market.

The honey, too, was in great abundance; both that collected from white clover and heather, both slung and run, as prepared by the cottagers in the old way—which as people are beginning to find out consists of honey, and some of nearly all the contents of the hive, too numerous and too nasty to mention. I believe it is dearer at 10*d.* per lb. than the other at 14*d.* or 15*d.*

There was some complaint that the honey did not meet with a ready sale, which from its quality the great bulk of it deserved; for when we consider the high price of butter, and the cheapness of honey, would it not be a cheap substitute? Will not 1 lb. of honey go nearly as far as 1 lb. of butter? I believe it does in my household: the children like it, and it is an agreeable and healthy change for them. I hope it has found a market since the show; it deserves one, for more beautiful honey than the greater part of it was never exhibited.

The bees, especially the Ligurians, attracted a large share of attention, and being exhibited close to our common black bee, the beauty of the former was seen to great advantage in contact with the black bodies of the latter.

The tasteful decorations in the hall were allowed to remain for the evening addresses, the house was tolerably well filled, with a very attentive and interested audience. The speakers knew what to say, and how to say it in the most practical manner. They gave a very succinct *resumé* of bee life, the bee-keeper's duties—both as a honey-grower or producer—and especially as a humanitarian, in doing all he can to abolish the horrible sulphur-pit, and save the lives of its destined victims.

I think after this second exhibition at Grantham, many who have not kept bees will now do so, and many who have done so previously will adopt better principles, to their own pecuniary profit and the advantage and comfort of their humble and industrious little servants.

I hope, too, that it will have the effect of stimulating other towns or counties to form apiarian associations, and thereby benefiting the community at large.—A Visitor.

DEVON AND EXETER BEE-KEEPERS' ASSOCIATION.

The first public Exhibition of the above Society was held, on the 25th of August, 1876, on the grounds of Northernhay, Exeter, in conjunction with the Devon and Exeter Botanical and Horticultural Society. Owing to the limited space of the grounds, the manipulation with live bees could not be carried out. The tent was full of objects of exceeding interest. The display of honey was very good, both as to quality and quantity. Some splendid supers were exhibited; the largest harvest taken from one stock of bees was 83 lbs. nett weight in a set of three Woodbury supers, worked on a Woodbury hive.

In the Class for Honey-Extractors, Mr. C. N. Abbott came to the front with his 'Little Wonder,' which combines two great advantages—viz. taking up little room and also being inexpensive.

The Griffin hive attracted much attention, with its ingenious arrangement for fixing and releasing the frames with the greatest facility, and preventing the crushing of a single bee. The Observatory hive, stocked with bees, and exhibited by Mr. S. Bevan Fox, also proved a great attraction. Mr. J. Lee exhibited several improved sectional supers, which gained an extra prize. The Association owes its existence mainly to the exertions of the Hon. Secretary, Mr. Wm. N. Griffin, of Alphington, who has had great experience in bee-keeping, and has aided the cause of bee-culture by practical work, with a view of showing how profitable and interesting bee-keeping can be made.

A great many persons visited the Show, and, on the whole, it was a great success. The judges were:—S. B. Fox, Esq., Exeter; Geo. Fox, Esq., Kingsbridge; R. J. Gray, Esq., Alphington; and G. Walsh, Esq., Rockbeare. The following are the judges' awards:—

For Members only.

Class 1.—For the largest and best harvest of honey in the comb from one stock of bees, under any system or combination of systems, the same to be declared on exhibition:—1st, Mr. G. Walsh; 2nd, Mr. G. Walsh; 3rd, Mr. W. L. Cummings.

Class 2.—For the best super of honey in the comb in glass, wood, or straw, or any combination of the three materials:—1st, Mr. S. B. Fox; 2nd, Mr. Petherbridge; 3rd, Mr. C. E. Fletcher.

Class 3 (offered by the Devon and Exeter Botanical and Horticultural Society, and open to the members of that Society and of the Bee-keepers' Association).—For the largest and best harvest of honey in the comb from one stock of bees:—1st, Mr. W. N. Griffin; 2nd, Miss Eales.

Class 4.—For the best hive for observation purposes, to be exhibited with combs, bees, and queen in proper working order (the bees must be securely confined):—1st, Mr. Fox.

Cottagers' Classes.

(*Members only—open only to bonâ fide Cottagers.*)

Class 5.—For the best super or supers of honey in the comb, from one stock, without destroying the bees:—1st, Mr. W. Pickings; 2nd, Mr. J. Roberts; 3rd, Mr. J. Roberts.

Non-Members.

(*No Entrance Fee—open only to bonâ fide Cottagers.*)

Class 6.—For the best super or supers of honey in the comb, from one stock, without destroying the bees:—1st, Mr. T. Taylor.

For open Competition—*Hives.*

Class 8.—For the most perfect bar-frame hive, to include cover:—1st and first-class certificate, Mr. W. N. Griffin; 2nd and second-class certificate, Captain Martin.

Class 9.—For the best honey-extractor, simplicity and cheapness to be considered:—1st and first-class certificate, Mr. C. N. Abbott.

Class 10.—For the best and largest collection of hives, bee-furniture, bee-gear, and apiculturists' necessaries, no two articles to be alike:—1st and first-class certificate, Mr. W. N. Griffin.

Class 11.—For any useful apparatus connected with bee management, calculated to be of real use in an apiary, extra prizes will be given. For set of sectional supers, J. Lee. Sectional bar super, Mr. J. Hamlyn.

THE BEES.

Book I.

ARGUMENT.

THEME proposed—Invocation—Neglect of Bees by the British Muses—Shakespear and Thomson excepted—Apologetic Address to those Poets—Study of Nature highly important to Youth—Apostrophe to a deceased Parent—Belan Grounds at Wynnstay—Song of Belan—Address to Lady William Wynn—Spring Employments of Bees—and Flowers then in bloom—Insects not produced by equivocal Generation—Process of Incubation—Labourers—Drones—and Queen Bee—May Flowers productive of Honey—Panegyric on the Œconomy of Bees—Their instinctive Ingenuity not the result of pure Mechanism—nor to be confounded with Man's superior Reason—Slower evolution of the latter—and of the Arts and Sciences to maturity—These lost in the dark Ages—and revived by Leo X.—transferred from Italy to Great Britain—Her Freedom, and Martial Glory—Author concludes with an affectionate Apostrophe to his native Island.

THAT theme, which erst immortal MARO sung,
Ere yet to loftier strains his lyre he strung,
Bold in the cause of Truth, a rustic Muse,
With strength far feebler than her zeal, pursues.
No rival to his fame, she loves to tread,
With timid step, o'er Nature's flow'ry bed,
Content to scan with philosophic eye
The Insect-labourer's heaven-taught industry,
Trace the young Bee-nymph from her silken pod,
And hail e'en there the UNIVERSAL GOD.

Though long hath Rome resign'd her eagle sway,
Her fire extinct, her language in decay,
Still VIRGIL's laurels on Parnassus wave,
And the sad wreck of letter'd ages brave:
Fain would an humbler bard his brow inwreath
With tufts of fragrant Thyme, that creep beneath.

Sweet Sister Nymphs, who once your PHILLIPS led,
Where gay Siluria's blushing orchards spread,
And boon Pomona with her sparkling bowl
Kindled fresh rapture in the Poet's soul:
Who heard, with DYER, on high Wrekin's brow,
The Shearer's song loud echoing from below,
And saw, in festive pomp, the Shepherds lave
Their fleecy tremblers in Sabrina's wave:
Or ye, who late with BLOOMFIELD joy'd to stray
Amid the rip'ning corn, or new-mown hay,
Sung the rich produce of the teeming soil,
And trac'd through circling suns the Farmer's toil,
Inspire my lay! While boon Pomona's bowl
Kindles fresh rapture in the Poet's soul,
While echoing songs from Wrekin's brow recoil,
And lives in verse the Farmer's changeful toil,
Oh! shame to Britain! shall her sylvan Muse
Still to the BEES their well-earn'd meed refuse.
Who once to all the NINE so fondly clung,
And on MENANDER's lip, enamour'd, hung?
Shall Athens boast that her Hymettus shines,
Green as of old, in OVID's flowing lines,
And honey'd Hybla, now an empty name,
Revive in MARO's verse her former fame?
Yet, ALBION, round thy sea-encircled shore,
Though rich in arts refin'd, and classic lore,
No nectar'd vale, no bee-crown'd hill can boast
One wreath of praise from all thy laureate host.

Some gleams indeed the British Muses yield
Of partial light o'er this neglected field,
Witness great SHAKESPEAR! his bold pen could trace
Each "ruling nature" of the honey'd race,
Their order'd state, their wise œconomy,
And all the varied labours of the Bee,
With matchless skill the forceful outline drew,
Then o'er the whole a moral mantle threw.

And thou, sweet THOMSON, tremblingly alive
To pity's call, hast mourn'd the slaughter'd hive,
Cursing, with honest zeal, the coward hand,
Which hid in night's dark veil the murd'rous brand,
In steam sulphureous wrapt the peaceful dome,
And bore the yellow spoil triumphant home.

Forgive, blest Bards, a Muse, that dares aspire
To catch one spark of your celestial fire!
Though faint she glimmer, and with borrow'd ray,
Yet not inglorious shall she chaunt the lay,
If, clad in Poesy's attractive stole,
She win, with venial art, the melting soul,
And, lur'd by numbers, the empassion'd Youth
Listen more fondly to the voice of Truth.
Condemn'd the Poet, let the Parent plead,
Who fain young reason's op'ning germs would lead,
Where, free from Envy's blast, or Folly's blight,
Virtue's warm sunshine pours her sacred light,
And bids the new perceptions, as they rise,
Spring from the earth, and mingle with the skies.
In busiest labour gay, the lessoning Bee
May teach the sweets of patient industry;
And well, ye infant wanderers, may ye trace
In each fine fibril of the insect race
The hand of Heaven, which forms with equal care
The tiny tubules of the slenderest hair,
And the wide-spreading cedar. Nature still,
Along the vale, or on the breezy hill,
In all her countless shapes the Youth surveys,
And pours to Nature's Cause the meed of praise.
Thrice blest ye few, who thus entranced, have trod
Her inmost walks, and hail'd the VARIED GOD!
To you, his favour'd sons, THAT GOD hath given
To taste even here th' approaching joys of Heaven.

Dear Shade! to thee the filial tear shall flow,
Who bade young Taste o'er all my bosom glow,
Who taught my dawning Reason to repel
Or cold Indifference, or Passion's swell.
Tutor'd by thee, in life's fresh morn I rov'd,
With speechless rapture, through the fields I lov'd,
Mark'd every varying feature of the scene,
The storm's wild grandeur, or the soft serene:
Where the light cloud the dark blue mountain kist,
Or shone the sun-beams quiv'ring through the mist:
E'en from the passing cloud some lesson drew,
And caught each fleeting beauty, as it flew;
In all her endless tints, and forms array'd,
I woo'd in every form the Proteus maid.
'Twas thine, dear Shade! with Taste's rich treasures fraught,
To bar from vice each avenue to thought,
Fill the mind's waste with many a flow'ret fair,
And scatter roses o'er the thorns of care.
O let my breast the bright example fire,
And each lov'd Child with kindred taste inspire!
So shall they shun the soul-corroding fiend,
That lurks, unseen, within the vacant mind,
Till in full ferment all the Passions rise,
And swift through every vein the poison flies.

Thus, hid within the close-entwisted brake,
Torpid and stiff, reclines the folded snake,
Till warm'd by summer's vivifying ray,
Again new lightnings in his red orbs play,
In wanton rage he shoots his forked tongue,
And, arm'd with death-wing'd venom, writhes along.

One tribute more, dear Shade! the Muse would pay,
While Fancy wafts her to thy lov'd WYNNSTAY.
There sprung creative Art at thy command,
And snatch'd the pencil from her Sister's hand;
So like herself the fairy semblance shone,
Exulting Nature claim'd it as her own,
And blue-eyed BELAN oft delights to raise,
Tun'd to accordant reeds, her Song of Praise.

I.

"Hail, gentle Spirit! thy benignant ray
"Could pierce, through deepest gloom, my secret source,
"Give my imprison'd waters to the day,
"And lead, with viewless art, my easy course:
"Nor call it Art, that clear'd the rugged waste,
"'Tis Nature heighten'd by the hand of Taste.

II.

"Where whilom trickled down the puny rill,
"In devious mazes, through the tangled brake,
"Now, 'mid the towering grove, and swelling hill,
"Spreads, in smooth majesty, the lucid lake;
"And every tint, that glows in yon tall wood,
"With tenfold radiance trembles in the flood.

III.

"All that in Cambria's chequer'd vales we trace,
"To please the tasteful eye, or win the soul,
"Each bolder feature, and each softer grace
"Here melting, form one harmonizing whole;
"So wak'd to mimic life the sculptur'd stone,
"Where all the Grecian beauties mingled shone.

IV.

"Whoe'er along yon winding path shall rove,
"Where every step some new enchantment yields,
"And catch betwixt the branches of the grove,
"The Gothic fane, green hills, and laughing fields;
"Where dashing waters down the steep rock roar,
"Or, where, with silver curl, they kiss the shore:

V.

"O let him drop one tributary tear
"O'er him, whose plastic hand, to Nature true,
"With every charm that clothes the varying year,
"And her own blended hues the landscape drew:
"Cold is the hand, which bade this Eden bloom,
"And sunk that genius in the silent tomb.

VI.

"Mark, where the votive column towers above,
"How, drooping round, the reverent Dryads bend,
"Hail the sad tribute of maternal love,
"And seem to mourn their Father and their Friend;
"Sure may the Planter claim some passing sighs,
"Who bade those groups, in fond assemblage, rise;

VII.

"Who taught their infant scyons where to shoot,
"And float their leafy curtains fair and wide.
"Obedient to his skill, even age's root,
"Mov'd, as by magic spell, in full-grown pride,
"Clung with fresh vigour to an alien glade,
"And wondering Oreads bless'd the new-born shade.

VIII.

"Long as yon pile records the PATRON'S name,
"His modest virtues, and his early doom,
"Nature herself shall speak the PLANTER'S fame,
"And stamp his worth in each returning bloom:
"If monument thou seekest—LOOK AROUND!
"His mausoleum is this sacred ground."

And thou, sad Relict of that Patron's love,
Oft shall these scenes thy widow'd bosom move,
While, wing'd with soft remembrance, Time's kind hand
Waves o'er each sharper pang his charmful wand.
Soothing to sweet regret, he leads thee still
Through the dark wood, or o'er the bright green hill,
Where many a faded tint of joy, or pain,
Shall in these kindred colours live again.
Clear as yon lake reflects the orb of day,
Beam'd in thy WATKIN Truth's unclouded ray,
And, as its waters, spreading far and wide,
Flow'd from the heart his Charity's full tide,
Diffusing health and joy to all around,
Even lisping infants caught the darling sound:
Mild and refreshing as the vernal dews,
He cherish'd every Art, and foster'd every Muse.

If on the SIRE his gentle influence shone,
O let thy friendly ray illume the SON!
When WYNN, and Virtue grace his moral page,
Their union shall disarm the Critic's rage,
Still in the theme each imperfection lost,
Like some rude vase, with gold and gems embost.

If late, fond Parent, thy unwearied care
Rear'd to full bloom the manly, and the fair,
And now around they throng, with duteous smile,
The Grace, or Guardians of their native Isle,
Well may the MOTHER-BEE thy favour claim,
The same her pleasures, and her toils the same;
And well the Poet earn thy kind applause,
Who courts thy partial ear in Youth, and Nature's cause.

Ere yet the RAM his golden horn displays,
And triumph o'er the night the length'ning days,
Smiles the young Spring; but, like a maiden coy,
With falt'ring footsteps meets the coming joy,
While lagging Winter, wrapt in many a storm,
And chilling vapour, hovers round her form.
Rous'd by the gleamy warmth from long repose,
Th' awaken'd hive with cheerful murmur glows;
To hail returning Spring the myriads run,
Poise the light wing, and sparkle in the sun.
Yet, half afraid to trust th' uncertain sky,
At first in short, and eddying rings they fly,
Till, bolder grown, through fields of air they roam,
And bear, with fearless hum, their burdens home.

First the gray WILLOW'S glossy pearls they steal,
Or rob the HAZEL of its golden meal,
While the gay CROCUS and the VIOLET blue
Yield to the flexile trunk ambrosial dew.
From them, in gaudiest robes, the DAFFODIL
Hangs self-enamour'd o'er the lucid rill;
And the pale PRIMROSE, as she lowly bends
O'er the deep dell, her light farina lends.
Two Wood-nymphs near, with blush of faintest glow
Light the wan cheek, and tinge the breast of snow,
ANEMONE, that shuns th' impending shower,
And trim OXALIS with her pencil'd flower;
Close to the shelt'ring copse the maiden cleaves
And coyly plaits her purple-tinted leaves;
While sweet ADOXA on her wither'd bed
Shakes musky odours from her pale green head.
With bolder air, and brightly varnish'd bloom,
Peeps forth young PILEWORT from the thicket's gloom,
And bolder still, LEONTODONS unfold
On the smooth turf their ray-encircled gold:
With Sol's expanding beam the flowers unclose,
And rising Hesper lights them to repose.
Nor yet alone to full-rob'd spring confin'd,
Around her brow the crown of flame they bind,
But, scatter'd still o'er summer's tawny vest,
Their ling'ring sweets regale the insect guest.
Soon to a brighter Nymph these beauties yield,
When gorgeous CALTHA gilds the marshy field,
And maids, and frolic youths, in order gay,
Twine her rich wreaths, to hail the new-born May.
In shadowy pomp, there stately COLTSFOOT spreads
His giant leaves, and waves his purple heads,
While pink-eyed "LADYSMOCKS, all silver white,"
Fling o'er the dazzling glare a softer light.

Brush'd from each anther's crown, the mealy gold
With morning dew the light-fang'd artists mould,
Fill with the foodful load their hollow'd thigh,

And to their nurslings bear the rich supply.
Content themselves, from Winter's scanty hoard
They spread, with thrifty care, the frugal board.
Ere yet through gland, or oozy pore distil,
Mellow'd by fervid suns, the nectar'd rill.
Hence, if dank Autumn with untimely storm
The honey'd harvest of the year deform,
Or the chill blasts from Eurus' mildew wing
Blight the fair promise of returning Spring,
Full many a hive, but late alert, and gay,
Droops in the lap of all-inspiring May.

So, when pale FAMINE o'er th' afflicted land
Stretches, with baleful scowl, his ice-cold hand,
The fainting Mother hears her Infant cry,
And lifts to Heaven the sad, imploring eye,
To give the balmy nurture feebly tries,
But, while she feeds her child, the parent dies.

Far earlier still, ere the bright God of day
From stern AQUARIUS rolls his onward way,
In strength, and numbers proud, arous'd from sleep,
Yon pregnant hosts their wintry vigils keep.
Part of the wondrous whole by Heaven design'd,
Blest with some portion of ethereal mind,
The prescient Female rears her tender brood
In strict proportion to the hoarded food.

Well might the Bard, on fancy's frolic wing,
Bid from fresh flowers enascent myriads spring,
Raise genial ferment in the slaughter'd steer,
And people thence his insect-teeming year;
A fabled race, whom no soft passions move,
The smile of duty, or the glance of love.
But shall the SAGE, in serious-seeming mood,
Draw from such alien source the living brood?
Go, fond believer, and thy hours beguile
With men fast form'd amid the ooze of Nile,
Or the fam'd steeds, the fleetest of their kind,
That claim'd a father in the western wind.
Whether within the womb, or silk-lin'd cell,
At Nature's call life's quick'ning pulses swell,
Still from one kindred fount her streams descend,
And thence shall flow till Time and Nature end.

With course unvarying, thus the Mother-Bee
Lays in the comb her shell-bound progeny;
FOUR days the embryo rest in still repose,
Ere the fifth morn its brittle crust unclose.
Coil'd in a ring her pliant folds she twines,
And round her frame the clear *albumen* shines.
While the fond parent, with instinctive zeal,
Brings to her eager grasp the fragrant meal.

Soon as FOUR days their destin'd course have run,
And sunk beneath the wave th' unwearied sun,
The full-form'd NYMPH clings to her close-seal'd tomb,
Spins her own silky shroud, and courts the gloom.
But, while within a seeming grave she lies,
What wondrous changes in succession rise!
Those filmy folds, which cas'd the slimy worm,
Now thrown aside, uncoils her length'ning form:
Six radiant rings her shining shape invest,
The hoary corslet glitters on her breast;
With fearful joy she tries each salient wing,
Shoots her slim trunk, and points her pigmy sting.
Though yet of tender mould, and faintest hue,
The pale AURELIA glimmers to the view,
Soon, black'ning by degrees each harden'd scale,
Fring'd with light hairs, she shews her plaited mail.

When TWICE SIX suns have on bright axle roll'd,
And edg'd the parting clouds with fleecy gold,
To fresh existence call'd, she proudly scorns
Her limbs imprison'd and her blunted horns.
Wins through the rifted wax her easy way,
And hails, on fluttering wing, the cheerful day.
New to the light, as sense impulsive leads,
She seeks at once the flow'r-enamel'd meads,
Sucks the pure essence from each honey'd bell,
And bears within her breast the crystal well.

So, when young CADMUS mourn'd a Sister lost,
And sought, in wild despair, Bœotia's coast,
By his strong arm th' envenom'd Dragon slain
In many a grisly volume press'd the plain.
To plough the fateful field Minerva taught,
And sow the monster's teeth, with vengeance fraught;
But ah! what wonder fills his awe-struck eyes,
As from the glebe emergent armies rise!
A human harvest breathes o'er all the field,
Grasps the keen lance, and shakes the beamy shield.

Such are the busy throng, whose numbers swell
The peopled hive, and frame the polish'd cell.
But now, when April smiles through many a tear,
And the bright BULL receives the rolling year,
Another Tribe, to different fates assign'd,
In ampler cells their giant limbs confin'd,
Burst through the yielding wax, and wheel around
On heavier wing, and hum a deeper sound.
No sharpen'd sting they boast; yet, buzzing loud,
Before the hive, in threat'ning circles, crowd
Th' unwieldy DRONES. Their short proboscis sips
No luscious nectar from the Wild-thyme's lips,
From the Lime's leaf no amber drops they steal,
Nor bear their GROOVELESS thighs the foodful meal;
On others' toils, in pamper'd leisure, thrive
The lazy Fathers of th' industrious hive.

Yet oft, we're told, these seeming idlers share
The pleasing duties of parental care,
With fond attention guard each genial cell,
And watch the embryo, bursting from its shell.

While love and pleasure thus your hours employ,
How short, vain flutterers, is your dream of joy!
Ere the fourth Moon unyoke her silver car,
For you the Fates their deathful woof prepare.
No widow'd matron mourns your hapless doom,
Nor drops the tear of duty on your tomb.
Each kind affection turn'd to deadliest hate,
Springs the fierce female on her once lov'd mate:
Or, darting from the door, with terror wild,
The father flies his unrelenting child.
Far from the shelter of their native comb,
From flow'r to flow'r the trembling outcasts roam,
To wasps and feather'd foes an easy prey,
Or pine, mid useless sweets, the ling'ring hours away.

So the rude CAFFER, lost to every tie,
That links the chain of soft humanity,
Dooms to untimely fate, with crafty rage,
The few remaining years of useless age.
All, faint, and parch'd beneath a burning sky,
On the lone wild the hoary victims lie;
No more the cruse with liquid crystal glows,
No precious food th' exhausted scrip bestows.
Ah! welcome now the gaunt hyena's yell,
The full-mouth'd lion, or the tiger fell!
Far kinder those fierce rushing from the wood,
Than the sharp sting of foul ingratitude.

But mark, of regal port, and aweful mien,
Where moves, with measur'd pace, the INSECT QUEEN!
Twelve chosen guards, with slow, and solemn gait,
Bend at her nod, and round her person wait.
Not eastern Despots, of their splendour vain,
Can boast, in all their pomp, a brighter train
Of fear-bound Satraps; not in bonds of love
Can loyal Britons more obedient move,
Whose patriot King an heartfelt homage finds,
And guides with easy rein their willing minds.
The pregnant Queen her duteous slaves attend,
With plausive air the high-arch'd dome ascend,
Cling in fond rapture round the genial bed,
And o'er her form a LIVING curtain spread.

When TWICE TEN suns, with all-resplendent ray,
Have shed soft radiance on the brow of May,
The Royal NYMPH to light, exulting, springs,
And gayly trims her short, but sinewy wings.
Long is her tapering form, and fring'd with gold
The glossy black, which stains each scaly fold;
With gold her cuirass gleams, and round her thighs
The golden greaves in swelling circles rise;
Full arm'd, the Monarch soars on sounding wing,
But mildly sheathes her formidable sting.

Thus, in the bloom of youth, and glory, shone
On Cressy's field great Edward's gallant son,
The SABLE WARRIOR, dazzling to behold,
His jet-black arms emboss'd with burnish'd gold;
A snow-white plume wav'd o'er his radiant crest,
Britannia's lion grac'd her hero's breast.
Yet sweetly glisten'd in his modest eye
Th' enchanting smile of manly courtesy:
With heaven-born clemency if valour weds,
Then each on each reflective lustre sheds.

Ye LIGHT-WING'D LABOURERS! hail th' auspicious sign,
When the TWIN STARS in rival splendour shine!
Cheer'd by their beams, your quick'ning numbers swell,
And pant your nations in the crowded cell.
Blithe MAIA calls, and bids her jocund train
Breathe the warm gale, or softly falling rain;
Inhal'd at every pore, the dewy flood
Spreads the young leaf, and wakes the sleeping bud.

Queen of the pasture, polish'd CROWFOOT weaves
Round her bright cups of gold the guardian leaves;
With juice corrosive fenc'd, secure she pours,
Amid the browsing herds, her luscious stores
Through each full-nectar'd gland; and grants the Bee
Of all her sweets a strict monopoly.
Now, lightly buoyant on the shoaly stream,
Her varied robes, and stars of silver beam;
Or now, UNARM'D, she hides, with jealous care,
Deep in the woodland glade her yellow hair.
Of paler gold, but sweetly-scented breath,
Bends the coy COWSLIP o'er the daisied heath,
Or on the green turf hangs her spotted bell,
Where lurks the fairy in his honey'd cell.
Gay o'er the grassy banks, that skirt the grove,
VERONICAS in tufted verdure rove,
Wildly luxuriant, glittering to the view
Their cluster'd corals of celestial blue;
Low in the rill one floating sister shines,
And her dark tint with pale NASTURTIUM twines:
A second, high on Freyddin's rugged brow,
Sheds o'er the dusky rock a sapphire glow,
And points, exulting, where the column'd pile
Marks the proud triumphs of her parent Isle,
Beyond the gaudy dyes of Persia's loom,
Bursts on the eye of taste the CLOVER'S bloom,
Where in one harmonizing whole unite
Th' ensanguin'd red, and unassuming white.
From kindred hues on either LAMIUM'S lip
The filmy guests delicious nectar sip;
And still for them, enrich'd with ruby stain,
Her amber cups shall GALEOPSIS drain.
But ah! what sweetness steals upon the sense
From yonder field, whose blossom'd BEANS dispense
Arabia's fragrance! sweet the soothing sound
Of countless bees, that buzz, and murmur round.
In gorgeous state, empurpling all the vale,
The bright-spurr'd ORCHIS wafts no scentful gale;
Yet when, in simpler stole, she courts the dell,
And mingles with the LILY'S snow-white bell,
Alike they woo the twilight's sober gloom,
Shoot their twin leaves, and bend their fragrant bloom;
While HYACINTH, in deep contrasted hue,
O'er each pale charmer flings his tresses blue.
The slyer OPHRYS, with insidious care,
Hangs the mock insect in her sea-green hair,
Shews to the robber bee her seeming guest,
And clasps the mimic spoiler to her breast.
E'en thou, smooth-sandal'd Mistress of the Lake,
Shalt the full splendour of the scene partake,
When thy own TREFOIL, like some lady fair,
With feathery fringes braids her streaky hair,
Gems her light curls with many a rosy bud,
And floats her threefold mantle on the flood:
Or there THY VIOLETS, with eye of gold,
And blushful cheek, their buoyant arms unfold.
To shield their glories on the pool's dark edge,
Range in close, marshall'd ranks "th' embattled SEDGE;"
Or pendant REEDS, ere yet with silv'ry plume
Their purpled locks sear Autumn's brow illume.

Nor dreads fair Flora now th' inclement skies,
When round her form protecting SYLVANS rise.
First barbinger of Spring, the SLOE uprears,
With leafless chaplets hung, his ebon spears,
Till full-rob'd HAWTHORN spreads in proud array,
His mantle green, his "blossoms of the May."
The warrior, CORNEL, tufts his blood-red stem;
And HOLLY'S leaves, that emulate the gem,
Point their keen lances round, ere yet her rind
Entrap in viscous snare the feather'd kind.
There light VIBURNUMS either charm disclose,
The mealy vestments, or the milk-white rose;
While pithy ELDER, scourge of mildew flies,
Bids for the bee his oozy clusters rise;
And yet shall bear, with borrow'd treasure stor'd,
In trim canoes the winter-cheering hoard.
Beneath, in lowlier guise, see BROOM display
His saffron spires, and bow the pliant spray;
Or prickly FURZE, with rigid stalk, unfold,
Girt with sharp spines, his honey-scented gold.
When first, LINNÆUS! to thy raptur'd gaze
Shot o'er the heath a vegetable blaze,
How brightly then gay Albion's Flora shone,
Long vainly cherish'd in thy gelid Zone!

Though now no more old Cambria's ORNUS wave
O'er mystic circles, or enshrine the grave,
Still in yon theatre of sylvan grace
The mountain Dryad holds no menial place,
Laves her wing'd leaflets in the torrent flood,
And lights with livelier tints the Pine's dark wood.
With her the WHITE BEAN, in congenial pride,
Shakes her gray locks on Freyddin's shaggy side,
And oft in vain the bounding kid would leap,
To crop their boughs, high tow'ring o'er the steep.
From both descended, see a filial form
Bend o'er Din Branna's brow, and brave the storm,
Or coyly veil amid the ruin's gloom
Her father's foliage, and her mother's bloom.
Where now the bower's sweet shade, or twilight grove,
Where "high-born HOEL" told his hopeless love?
Or where the fretted roof, whose echoes rung,
As fair MYFANWY'S praise the minstrel sung?
O'er all the dreary waste breathes not a sound,
Save the soft hum of bees, that, hov'ring round,
Scale the low, crumbling walls, and joy to sip
Draughts of clear nectar from GERMANDER'S lip;
Or oft they climb the ivy-vested tower,
Where rests, unheeded else, the "hermit flower."
Hence, swift descending from the dizzy height,
YE LIGHT-WING'D LABOURERS! speed your humbler flight,
Culling each sweet Llangollen's Flora yields,
In wood, or dell, or variegated fields;
Then fill secure the quickly swelling comb,
While TASTE and VIRTUE guard your hospitable home.

Yes! LIGHT-WING'D LABOURERS! still, unwearied range

From flow'r to flow'r, YOUR only love of change!
Still be your envied lot, communion rare,
To wreathe contentment round the brow of care!
No nice distinctions or of rich, or great,
Shade the clear sunshine of your peaceful state;
Nor Av'rice there unfolds her dragon wing,
Nor rack'd Ambition feels the scorpion sting;
Your temper'd wants an easy wealth dispense,
The public store your only affluence:
For all alike the busy fervour glows,
Alike ye labour, and alike repose;
Free as the air, yet in strict order join'd,
Unnumber'd bodies with a single mind.
ONE royal head, with ever watchful eye,
Reins, and directs your restless industry,
Builds on your love her firm-cemented throne,
And with her people's safety seals her own.

Shall then proud Sophists, arrogant and vain,
Spurn all these wonders of the honey'd reign,
And bid alike one mindless influence own
The social Bee, and crystallizing stone?
Each link, they trace in animation's round,
Dashes their poison'd chalice to the ground.
If, in the Insect, REASON'S twilight ray
Sheds on the darkling mind a doubtful day,
Plain is the steady light her INSTINCTS yield,
To point the road o'er life's unvaried field:
If few those Instincts, to the destin'd goal,
With surer course, their straiten'd currents roll.
Though soon the short-liv'd Bee submit to fate,
And SEVEN fleet summers fill her utmost date,
Still, if we count the strokes of Time's light wing,
As swift, or slow, the fresh ideas spring,
And labour crowds the closely written page,
Those few, fleet summers lengthen to an age;
While Man too oft, in printless pleasures gay,
Finds his blank season dwindle to a day.

Shall then with reas'ning Man yon murm'rers vie,
That load, in life's first hour, the hollow'd thigh?
By heaven-born Instinct plum'd their vent'rous wing,
They cull at once the choicest sweets of spring.
Hath ripe Experience, or Tradition told
New shapes, or fashions for the waxen mould?
While still that Instinct bounds their measur'd view,
From age to age, from Zembla to Peru,
Their snow-white cells the order'd artists frame,
In size, in form, in symmetry the same.

Far different MAN, to higher fates assign'd,
Unfolds, with tardier step, his Proteus mind.
With numerous Instincts fraught, that lose their force,
Like shallow streams, divided in their course,
Long weak, and helpless, on the fost'ring breast,
In fond dependence leans the infant guest,
Till Reason ripens what young impulse taught,
And builds on sense the lofty pile of thought;
From earth, sea, air, the quick perceptions rise,
And swell the mental fabric to the skies.

As slowly pac'd from infancy to youth
The radiant form of SCIENTIFIC TRUTH,
And still, by lessoning lore, or language borne,
Each circling age, and clime, new arts adorn.

Thus, matchless MARO, though the sacred NINE
Around thy brow th' Aonian wreath entwine,
Though all the learning of Rome's brightest age
Grac'd the rich numbers of thy glowing page,
And willing Hermes lent thee ev'ry art,
Which Greek, or Roman knowledge could impart,
Still many a precious gem of science lay
In Time's dark womb; nor yet had dawn'd the day
Of Truth unclouded. Round a Cæsar's throne,
Transient as Dian's orb, she faintly shone,
But soon, with Rome, involv'd in Gothic night,
Sunk ev'ry ray of intellectual light.

Through many a torpid age the infant pin'd,
On idiot superstition's lap confin'd,
Or taught by monkish pedagogues the rules,
And senseless jargon of the barb'rous schools;
Till her own LEO, heaven-directed, rose,
For the bright maid a blooming partner chose,
And Taste, triumphant o'er a bigot's pride,
To Genius gave her as his destin'd Bride.

Nor long, Italia, could thy genial gale,
Nor e'en the sweets of Arno's flow'ry vale,
Though basking in their lov'd LORENZO'S smile,
With charms Circean the blest pair beguile.
In love, and music all the Roman lost,
They sprung, disdainful, from th' enervate host;
On loftier themes intent, they westward flew,
Till sea-girt ALBION caught their raptur'd view;
Beam'd o'er her chalky cliffs their mingling ray,
And each fair science brighten'd into day.

So ARETHUSA, in th' Elean grove
Shrunk, with coy terror, from ALPHEUS' love.
No more a Nymph of chaste Diana's train,
The new-born Naiad sinks beneath the plain,
Steals thro' the crevic'd rock her silver wave,
Or gleams, translucent, in the crystal'd cave:
E'en through the briny chambers of the deep,
Pure, and unmix'd her virgin waters creep,
Till, bright emerging to the garish day,
On the green Isle her bubbling fountains play.
ALPHEUS still through ev'ry maze pursues,
And now the yielding Maid, with better fortune, woos.
Nor more shall envious DORIS dare to stain,
With slime embitter'd, their united reign;
Clear, and more clear their sparkling currents glow,
Each thirsty pasture cheering, as they flow.

Thus, purify'd from superstition's guile,
And Tyrant power, shall TRUTH and GENIUS smile
On the glad tenants of their fav'rite Isle.
Though moist her clime, and bleak her northern air,
Yet, Freedom, nurs'd by thy benignant care,
With Greece, and vaunted Rome she proudly vies,
Nor pants for warmer suns, nor clearer skies.

Her deeds in Arms let laureate Bards recite,
With all the wonders of the glorious fight!
Soaring on epic wing, they best may tell
How MARLB'ROUGH fought, or ABERCROMBIE fell.
Still louder shall they swell the choral strain,
To sound her triumphs on the subject main,
While drooping Vict'ry bows her laurel'd head
And points in conquest where her NELSON bled.

Long, generous BRITONS shall those Laurels shine,
And round your Oak their leafy arms entwine,
While manly Sense, and Independence high,
Shield the fair form of charter'd Liberty.
If in your ports the floating forests ride,
And Commerce swells her sail with ev'ry tide;
If ev'ry wave, in ev'ry clime, conveys
Your victor Navies o'er the listed seas;
Oh! dearly prize the soul-inspiring source,
Whence all those blissful currents shape their course!
Where sordid Self, and foul Corruption reign,
E'en Arms, and Arts, and Industry are vain.
Oh! guard, unsoil'd, from Innovation's zeal
The well-pois'd balance of your public weal;
Where bounded Kings, and equal Laws bear sway,
'Tis pride to serve, 'tis freedom to obey.
Still on your Sons impress the soul sincere,
That gives to vice the lash, to pain a tear;
And still in every BRITON'S heart be shrin'd
His Country's love, the love of human kind.

Then future ages shall again unfold
Those long-lost times, by fabling poets told,
Unlike this iron age, an age of gold.

END OF THE FIRST BOOK.

Correspondence.

*** *These columns are open to Subscribers, so that their queries, replies, correspondence, and experiences, may be* fully *and* faithfully *recorded; and for the discussion of all theories and systems in Bee-culture, and of the relative merits of all hives and appurtenances, that the truth regarding them may be ascertained. The Editor, therefore, must not be expected to coincide with all the views expressed by the various writers. All Correspondence is addressed to the Editor.*

SUGGESTIONS FOR THE WINTER CAMPAIGN.

Zealous bee-keepers should now be preparing for the winter campaign, and numerous ways of spreading a knowledge of bees and bee-culture will suggest themselves. For instance, at the literary and musical entertainments now so common in towns and villages interesting extracts or poetical selections about our little pets might occasionally be read. Such as have time and talent for literary pursuits might try a few lectures, and those who are anxious to do something but have not much time to spare could read Mr. Desborough's lecture, but they should not fail to follow the advice he gives at the end thereof respecting the collection of hives, &c., by way of illustration. If any are still more venturesome they could get up a little entertainment—say, 'An Evening with the Bees,' and I fancy it would be no bad exchange for the worn-out Spelling Bee. Secure the services of a genial and lively chairman. If he is a bee-keeper, so much the better. If not, coach him up a little, so that he may make a few introductory remarks; or, if he is but a poor extempore speaker, get him to give a reading. Then let the 'entertainer' make a few remarks, which he could enliven by reference to the German or Italian bee pictures, and an observatory hive or two. Next, get some young lady to sing a suitable song (and there are many who will), with pianoforte accompaniment. A few more remarks, illustrated by various kinds of hives and apparatus, would follow. Another song, and then a reading or a third short lecture. Some will be able to add a microscope or two, or, failing these, good magnifying glasses, for the purpose of allowing the audience to see the various parts of the bee; or a few slides for the magic lantern would be equally useful. The readings may range from grave to gay, from Langstroth to 'Buz-a-Buz.' The songs could be varied, too. For instance, 'How doth the little busy bee,' rendered *à la* George Buckland, would be appreciated by those who love fun as much as some of the more poetical and musical verses in which our pets are referred to would be by others. The great thing would be to combine instruction with amusement, as we should thus reach a much more numerous class than it would otherwise be possible to do. Many of your readers will be able to improve on my crude suggestions. If such will give their neighbours the benefit of their advice something will certainly be done; so I hope they will speak out. What we want is to increase the number of intelligent bee-keepers, and this I fancy can be brought about in various ways, by comparing the skep and bar-frame hive, the old way of bee-killing and the new style of bee-keeping, and saying in many ways,—'Look on this picture and on that!'

Some persons, however, cannot venture on a public platform for such purposes as lecturing, singing, or reading, but they can still do something to help on the cause by writing an article occasionally for district newspapers, describing the wonders of the bee-world, giving an account of extraordinary honey harvests, or offering seasonable advice to young beginners. Others, who are neither eloquent of speech nor ready with the pen, can do much by paying occasional visits to bee-keeping neighbours for the purpose of offering words of cheer, or giving hints as to recent improvements. The loan of a good book, the gift of a leaflet, or the occasional distribution of spare *Journals*, will all help to encourage bee-keeping and increase the number of bee-keepers.—C. T.

THE PERFORATED ZINC ADAPTER.

I have this year tried the perforated zinc recommended by Mr. Obed Poole, of Uphill, Weston-super-Mare, and thank him heartily for the suggestion. I worked the Lee's Crystal Palace super which I had from you, and the bees worked very freely through the holes, but there was not a spot of brood or speck of pollen in one of the combs.—C. J.

THE LAW ON BEES.

May I criticise an expression used in 'J. B.'s' letter on the 'Law of Bees,' page 79 in the September number of your *Journal?* He says that 'by one of the laws of Alfred the Great all bee-keepers were bound to ring a bell when their bees were swarming, to give notice to their neighbours of the fact; *hence the origin of the tin-can music employed on such occasions.*' If he has read the fourth Georgic of Virgil, he might remember line 63 :—

'Tinnitusque cie, et Matris quate cymbala circum.'

Showing that the tin-can music may be referred back to Virgil's time at least, instead of only to Alfred the Great.—J. D. Pode, *Slade, Ivybridge.* —P.S. Aristotle also refers to the custom.

[The effect of the settlement of swarms of bees as caused by the beating of brazen instruments is mentioned, also, by Plato and Pliny, Varro and Columella; the two former ascribing it to joy, and the two latter to fear. Aristotle is in doubt as to which of these two feelings it ought to be attributed.—Ed. *B. B. J.*]

BEE LAW.

In your last number you say, 'Doctors differ.' No! Allow me to say they certainly do not differ. I hope your good correspondent, Mr. Foxwell, will hesitate to act the part of his 'own lawyer,' lest he should, by so doing, have the usual client. I suppose he would follow into, and reclaim from, his neighbour's field, his horse or his cow, but not his identified swarm of bees, his property; if so, he would not be an undesirable neighbour. He may readily follow and identify one of his little workmen, if he will

employ Queen Mab's carriage, and keep it well in sight, when it is engaged on one of its foraging excursions. In conclusion, I beg to say you have the law of bees, and if it cannot be easily understood I cannot help it; identification is the *ne plus ultra* of the question. I have done.—J. B.

SALICYLIC ACID AND ITS USES.

Many English bee-keepers will, with interest, have read in your September number, page 83, the good description of the German (Hilbert's) cure for foul-brood. The writer says that space prevents his giving further particulars, but can you find room for two or three small precautions which are recommended by Signor Grassi, in his description of cure as practised in Italy, and described in *L'Apicoltore* of May, 1876?

'The alighting-boards should be bathed with the solution of salicylic acid at least once a-week.' Every utensil used in managing a diseased stock should be carefully disinfected with solution of salicylic, or (what costs less) with *acido fenico*, diluted with water. Every two days one gives a diseased stock half a litre ($\frac{7}{8}$ths of a pint) of honey or syrup, to which are added from 30 to 50 drops of salicylic acid.' (Previously he gives this receipt for solution, —10 grammi of crystallised salicylic acid dissolved in 400 grammi of spirits of wine.) Signor Grassi adds, 'At least once a fortnight one gives a dose of honey and acid even to each sound stock, as a preservative.'

In the same number of *L'Apicoltore*, page 160, Dr. Dubini publishes the following valuable information of the uses of this salicylic acid:—

'As one is speaking of salicylic acid as a remedy against foul-brood, it may not be amiss to let the reader know some of its other virtues.

'It preserves meat fresh for a long time. If the meat has already begun to go bad, immerse it in solution of 20 grani of acid to every litre (1¾ pint) of water. After this, wash and dry it. In this way the meat will have lost every trace of bad smell.

'To keep eggs fresh for months, it is enough to leave them immersed for a quarter of an hour in a solution of 60 grani of salicylic acid to every litre of water, and then take them out and dry them.

'To keep milk for 36 hours longer than usual, and not destroy in it the germs of cream and butter, dissolve 5 grani of acid in every litre of milk. This will not in the least change its taste.

'"*L'acido fenico*" has the same property, but its smell is strong and pungent. If in a solid state it is a poison, like any other caustic.

'"*L'acido ipermanganico*" has the the same virtues, but, although it has no smell, it stains clothes.

'Sprinkling a pinch of salicylic acid on the top of preserves, jellies, or honey, one effectually prevents fermentation or mouldiness; the more so when acid has remained in their composition. Perhaps, also, ink, which (in Italy) often becomes coated with mould in summer, could be preserved in the same way.'

For the information of English readers it would be well to say that *acido fenico* is that usually called carbolic acid (also known as phenic acid); that *l'acido ipermanganico* = hypermanganic acid; that 20 Italian grani = 1 gram = 15 English grains; and that 10 grammi = 2½ drams English.

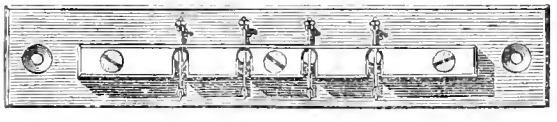
I hope these hints may be useful in England, if you bring them to notice in your *Journal*.—Arthur J. Danyell, *La Tassinara, Lastra a Signa, Florence.*

HONEY HARVESTS.

If your correspondents, when giving the weight of their honey harvest, would state the number of hives from which it was gathered, and whether or not the bees were taken to the heather, it would be very satisfactory to many of your readers.—A Lady Bee-keeper.

IMPROVED FIVE-PIN TRAP.

Being much struck with Mr. Cheshire's little invention of making a bee-trap by the fixing (?) of five pins (vol. ii. p. 165), I made one as suggested by that gentleman (vol. ii. p. 190). Upon trial, I found the bees made their escape in quick time, but returning after an absence of half an hour I found Mr. Wasp and Mr. Robber Bee lifting the pin and walking in as if they had a 'free pass;' this led me to contrive a bridge or guard over the holes which



does not interfere with the working of the pin, but effectually prevents the above-named rogues from getting at the sweets which they know so well are inside. On referring to the sketch, it will be seen, I have arranged the pins a little differently to Mr. Cheshire's plan—putting a staple at the *bottom*—the two upper (half) pins, standing out about a quarter inch with another (half) above them to keep the fall in its place when the trap is carried about. The important point is in having the arch and the distance between its lower points and the staple no more than the diameter of the hole. Any one with a few tools, good eye, and steady hand, can make one in a short space of time.—S. F. Clutten, *Whittingham Hall, Fressingfield, 5th September*, 1876.

SALES OF HONEY.

I see advertised in your columns an exhibition and sale of honey at the Alexandra Palace, similar to that of last year at the Crystal Palace. Last year I sent up for exhibition and sale more than 10 stone of honey. Though carefully packed by experienced bee-keepers here, I received from the secretary a notice that it was all 'smashed to pulp and utterly unsaleable: should he take it as run honey at 10*d.* per pound?' This I agreed to, under the circumstances. Finding, however, by the papers, that I had got several prizes, I wrote to make further inquiries. The reply was still the same. I have good reason to believe that my honey was afterwards sold at 20*d.* per pound, in very fair condition indeed, and in the comb. Now here has been some most extraordinary mismanagement, causing heavy loss to my poor cottagers, to whom, as was stated at the time, most of the honey belonged. What guarantees do the Association give that a similar fate will not this year overtake honey belonging to country exhibitors who cannot themselves

attend the show to look after it?—C. N. Gray, *Vicarage, Helmsley, York, Aug.* 24, 1876.

[This came too late last month to enable any reply to be given before the Show. so, with the permission of the writer, it has been allowed to stand over.—Ed.]

THE STEWARTON HIVE AND SYSTEM.

The merits of the Stewarton Hive and the mode of manipulating it, have been so fully and ably treated of by 'A Renfrewshire Bee-keeper,' that it may perhaps seem superfluous to write more upon the subject. However, as I was induced to test the capabilities of the system, in consequence of his testimony, others may be led to do the same, when they see the results which I have obtained by carrying out his instructions.

In the course of twenty years, I have never obtained more than 60 lbs. of super honey from one bar, or bar and frame hive, and have frequently been annoyed by the intrusion of the queen into the supers. This annoyance has never occurred with my Stewarton boxes. One set has yielded 144 lbs. of most beautiful super honey this season. A second set of boxes from which a swarm was taken, has given me 75 lbs. of equally pure virgin honey-comb, free from the slightest trace of brood or pollen, sealed and filled in the most perfect and beautiful manner.

The Stewarton plan of putting empty supers on the top of those which are partially filled, answers most admirably. The bees work out from a centre, without break or interruption; and thoroughly fill and complete the lower boxes, whilst they are extending their operations in the upper ones. When the lower boxes are completed and have been removed, the upper ones will probably be more than half filled, so that when the latter are brought down upon the top of the stock, the queen finds it impossible to lay, owing to the depth of the cells, even when they are not filled with honey, if she by chance wanders into the super.

The hive referred to, consisting of two 7-inch body boxes, was supered with two supers early in June, and the bees soon took possession of the boxes; but as honey was not then very plentiful made comparatively slow progress, and as the hive did not seem crowded, I did not think it advisable to give extra accommodation below.

On the 11th June a large swarm issued forth, which was hived in an ordinary straw skep, and as soon as the bees were settled, they were carried down into the cellar; lest some of the numerous vacant hives, in which the bees had died during the winter, should tempt them to decamp.

Having thoroughly examined the stock and removed the royal cells, I returned the swarm to the parent hive. A third 7-inch body box furnished with pieces of worker guide-comb was now placed below the stock, and two additional supers were added at the top. The bees at once set to work in earnest, so that a fifth super was added on the 4th of July. Finding that the three lower supers were quite full, they were removed upon the 11th of July and two empty ones put on the top of the pile. Two completed supers were removed on the 26th July, and the two remaining ones, partially filled, were taken off upon the 6th of August. The results were as follows:—

July 11th, 3 supers . . .	68 lbs.
„ 26th, 2 „ . . .	41 „
August 6th, 2 „ . . .	35 „
Total . .	144 lbs.

of perfectly pure virgin honey-comb. Five of the boxes were thoroughly filled and sealed. A sixth was nearly completed, and the seventh was filled with comb, and two-thirds filled with honey. All the comb, with the exception of a little guide-comb in the first two boxes, was made by the bees this season. The other boxes were only supplied with strips of plain wax-sheet (not embossed), about ¾ of an inch in depth, fastened along the centre of each bar, to secure straight combs. No feeding, or extraneous aid of any kind, was given to the bees, but all the materials used were fairly collected from the field by these indefatigable workers. No credit would be due to either bees, or bee-master, if supers of 3 or 4 cwt. were filled in the manner advocated by Mr. Pettigrew; and the knowledge that such practices are carried on, makes many persons sceptical, when they see fine supers, which have been fairly and honestly filled, and which are the results of a really good system of management. After the removal of the supers, the stock (three body boxes with floor-board) weighed 80 lbs. gross. My bees are all pure Italians. — J. E. Briscoe, *Albrighton, Wolverhampton.*

Echoes from the Hives.

Forton, Gosport.—'It is with great pleasure I add my testimony to those of others in favour of the Little Wonder extractor. I have tried it with honey-comb in frames, and the same detached, and always with the greatest success. Its portability and price, in addition to its simplicity, ought to secure for its inventor a rapid sale. I have lent mine to an old farmer here, who took off his first super this autumn. He was astonished and delighted at the machine. He is now quite a convert to the new system of apiculture.'

Stroud, Gloucester.—'Circumstances over which I have no control will prevent my being present at "our" Show this year; else I intended bringing some of those sectional supers with me for sale, of which I have about two dozen. My bees have done wonders this year (some of them). I have two of your bar-frame hives (swarms from last year), which have each yielded above a hundredweight of surplus honey, although at the end of April they had only five out of the eight frames filled with comb, last year they having been unable to fill their hives. One swarm this year (May 24) did remarkably well. It filled the bar-frame hive and stored over 70 lbs. of honey.'—C. J. Smith.

Dorset.—'The past season has been unusually good, and those who have managed their bees in a rational manner have been liberally rewarded for the trouble they have taken. The honey-harvest has been more favourable than for many years past, notwithstanding the general lateness of the first swarms and an unusual tendency amongst the stocks to swarm instead of taking to supers. Most of the local Horticultural Societies have given prizes for honey, the stipulation being, in several instances, that it had been taken without destroying the

bees. Moreover, several gentlemen have done their best to enlighten their poorer brethren by taking or sending handsome and heavy supers, model hives, &c., to the various floral *fêtes*. Amongst the number we might name the Rev. G. W. C. Skene, of Fontmell Magna, near Shaftesbury; Rev. Prebendary Warre, of Bere Regis, Blandford; Rev. J. Rooke, Rampisham, Dorchester; and Mr. J. Brown, of Maiden Newton. Their exhibits cannot fail to produce a salutary effect, while the advice they have given and the encouragement offered will certainly add to the number of bee-keepers, and increase the interest in apiculture. Several cottagers have sent excellent exhibits of honey to village Flower Shows, and some of these have been accompanied by improved hives of home manufacture. The great event of the month has, of course, been the Sherborne Show; but, as you will probably find some particulars about this in another column, I will only say that it was a most interesting and successful affair. The local papers gave long and good reports, and all spoke in terms of the highest praise respecting the Show. As several good bar-frame hives, an extractor, some supers, and sundry bee-keeping apparatus were sold at the Show, there can be little doubt that good results will follow. Moreover, there has been ample evidence that a genuine spirit of inquiry has been awakened. Gentlemen who had long kept bees in the old-fashioned style have decided to try bar-frames; others talk of ordering extractors for next season: slow feeding is being tried in several apiaries; and one of the principal country gentlemen who had given up bee-keeping has decided to start afresh in consequence of what he saw and heard at Sherborne. So we are hoping for still greater success next year.'

Rashwood, Sept. 22nd.—'I had quite an interesting piece of business with my bees the other day. I had caged a queen I wanted to keep, and joined part of another lot to the bees by scented syrup and a whiff of smoke: and, on looking at Regina thirty-six hours after caging, I found her curled up in the bottom of the cage, not having fed her, although putting the cage between two honey-combs, which I thought would be sufficient. Well, finding her all of a heap, I opened the cage-bottom (Raynor's) and shook her out. The bees at once began overhauling her, not roughly, but rather tenderly; and, on looking for her about twelve hours after, found her all right and sprightly, not as I expected to have found her —on a sheet put outside the hive, defunct. I was very pleased, I can tell you, not having given the bees credit for such resuscitating powers. I see, by last *Journal*, some have not had good luck by the inverting process. I turned a Neighbour's flat-topped straw upside down after they had swarmed and twice attempted to cast, which latter I at last prevented by catching the queen and altering the ground-door of their habitation. They stored about 12 lbs. of honey in a super when inverted, and also —what I can't make out—put some in the hive, as, when I transferred the comb to a bar-frame, I swung out about 6 lbs. of honey, and left about 8 lbs. in the comb. Can you account for the way they fixed their honey in the inverted cells of stock hive? I can't; unless they made the under lip of the cell thicker, like unto a door-sill. My bees are pollen-carrying, and I hope this fine weather will last a month.'—HARVEY WALL.

Belton Gardens, Grantham, Sept. 21st, 1876.—'A most unusual thing occurred here yesterday. About 3 o'clock a swarm of bees came and entered direct into a hole in an old elm-tree. The hole had been previously occupied by starlings for nesting. Did you ever know a swarm so late in the season?'—JOHN BOLTON.

Somerset.—'Reports come to hand from various parts of Somerset of an excellent honey harvest. Several cottagers who saw the manipulations at Weston-super-Mare, and to whom the Leaflets about Driving had been given, have driven their bees instead of burning them. The general price of honey is still 1*s.* per pound, for, strange to say, the difference in the yield, seems to have little effect on the market value. Last year, when few cottagers had any to sell, those who could spare asked the shilling only; and now that they have an abundant harvest the price remains the same. The Show in connexion with the West of England Apiarian Society is to be held at Taunton next year.'

Hitchin, Sept. 2nd, 1876.—'Like all your disciples, I have had a splendid harvest of honey, and hope to have the honour of exhibiting at the Alexandra Show. All my increase of stocks are put into bar-frame hives made after your pattern; and, although swarms of the current season have given me large supers, the frames are glutted with honey; and, upon examination, I find that, unless I can at once take away some of it, there will be but a poor chance of getting young bees this autumn. Your valuable advice in April saved my best stock of this year. I shall send its produce of super-honey to the Show.'—P.

Little Hungerford, near Newbury.—'In answer to your kind letter respecting the bees, I write to say that we had one stock of bees, and it has become six—that is five increase. The old stock had a swarm, smart, and a cast, as we so call them: this made three increase. Then the swarm had a swarm which we call a maiden swarm; this made four increase. Then the maiden swarm had a swarm: this made five increase—altogether making six stocks of bees. Such as this I never heard of before.'—C. BARLOW.

Kirkby, Sept. 23rd, 1876.—'I write more especially now to add my testimony to open driving of bees for efficiency, safety, and certainty. I yesterday drove for a cottager a condemned stock most successfully, which was my first trial; and to-day another as successfully. I am volunteering my services all around where I can obtain a footing in driving and uniting to neighbouring stocks, and am also, although slowly, endeavouring to introduce the improved hives. I find a willingness to adopt the bar-frame hives, if they can be obtained within their means. I am taking orders for the cheapest and best, and hope to have a good number before spring.'—CHRIST. WADE.

Queries and Replies.

QUERY No. 174.—Will you kindly tell me how best to proceed in order to add some bees to a swarm of this year in one of your hives? I mean to drive the bees from a straw skep for this purpose. 1st, Will it be safe to put the driven hive of bees, which I propose to add, also a second swarm of this year, on the bars of your hive, and allow them to creep down into the bar-hive? Of course, my object is to prevent loss of numbers through fighting. I intend, also, to remove the old queen from the bar-hive, and give them the queen of the driven stock, as she is young. 2nd, Should I inclose her in a cage, for safety? 3rd, Will it facilitate matters much if I scent both stocks with peppermint? I attended the Show at the Alexandra Palace with two other bee-keeping friends, chiefly to learn how best to manipulate hives: as all of us have much to do in that way now. I am sorry to say we found the whole thing was a mere mockery; we were excluded from what we most wanted to see, the details of the performance, the how to do it. What has to be done can all be found in books. And to charge sixpence, simply in order to exclude one from the manipulations, seemed to us to merit something like the name of imposture. Many others were equally indignant with ourselves. We could see and hear nothing.—A. T. B., *Coleshill, Warwickshire.*

REPLY TO QUERY No. 174.—The safest method of uniting is to reduce the bees to a common state of poverty by taking away all their combs, and leaving them nothing to defend: then if sprinkled with scented syrup and mixed together they will unite, and after the

lapse of a quarter of an hour, their combs (scented also) may be returned to them. Should the frames of combs contain brood they should be placed close together while the bees are absent from them; if in a skep it should be taken into the house and set on the kitchen hearth, right way up, of course, and with the entrance closed. We regret exceedingly that there was any cause for dissatisfaction at the Alexandra Palace Show.—Ed.

Query No. 175.—Having just returned from the Bee Show at the Alexandra Palace, a few questions have suggested themselves which I take the liberty of putting to you, in part *pro bono publico*:—

1. If I were to use Lee's double hive—which admits of two swarms or stocks working together, and, by certain arrangements in the openings between, allows the bees to become used to each other—what would be my chance of a prize for either the best super or harvest of honey if the same be worked by the bees in the above hive?

2. Is it lawful to deprive the bees of all the honey they may store in the stock hive by using the extractor, thereby compelling them to store all their gatherings in the supers? And is it not considered cruel to so repeatedly open the hive, thereby disturb the bees for that object? for if so, it ought not to be encouraged, and would not be therefore a natural product.

3. Why was no prize awarded in Class 6, as Mr. Hooker's hives in other classes took prizes?

4. Should you have any objection to Lee's double hive, kindly state reasons as to its not answering, &c.—John H. Howard, *Exeter*.

Reply to Query No. 175.—No. 1 assumes too much. The bees of two stocks will not work together; they may get on visiting terms, as stocks often do that have one alighting-board in common, as in some bee-houses; but the result is generally the evacuation of one or more, and the union of the bees under one sovereign. If they were kept divided and distinct they would be two stocks of bees, and their products would be eligible for competition in the general harvest of an apiary, but not as that of one stock, it being really a semi-detached pair containing two families.

2. It is lawful to deprive the bees of the honey in the stock hive; but we fail to see how that will *compel* them to store all their gatherings in the supers, unless it is implied that the stock-hive will immediately be occupied with eggs and brood, in which case we should consider the bees were in a state of high cultivation, which ought to be encouraged to the utmost. In answer to the suggestion in the last part of the query (No. 2), we beg to ask at what point in cultivation does a product cease to be natural? We do not see any cruelty in opening a hive at any reasonable time.

3. We suppose that the judges of Class 6 failed to discover any *new principle* in the hives exhibited, and so made no award.

4. The objections we have to double hives (usually called twin hives) are, that they are not so convenient as single ones; that the bees are liable to unite, that disturbing one of them for any purpose often disturbs both: that, unless both be equally strong, fighting may be caused, which would injure both; and, finally, that nothing is gained by the arrangement.—Ed.

Query No. 176.—I intend next season to try a hive holding 20 to 30 frames (Langstroth) in a row, but should be much obliged, before making it, by your kindly answering the following:—1st, Will not this hive prevent swarming if, by means of division boards, it is enlarged by a frame of comb at a time, as room is required, beginning with (say) nine frames? I would again contract it for winter. 2nd, Will the bees not store honey more readily and in larger quantity in the newly-added combs, *i. e.* in the hive itself, than in supers? And 3rdly, will the queen, when the brood is at its full number hatching at once, keep to the combs in which it is, which would be at one end of the hive? I would have no division in the hive, except to shut off the space not immediately required. 4thly, Please mention the main objection to a hive of this kind.—F. E.

Reply to Query No. 176.—1st, No hive that has ever been invented, or, as far as our belief extends, ever will be invented, can or will be a specific against swarming; but there are many which are so commodious for the bees, that rightly managed, it is rendered improbable rather than otherwise. Theoretically your proposed hive will do all you wish it to do, but practically it will be found that the bees have a will of their own, or are influenced in a way not yet understood by humans, and that through some combination of unknown circumstances they acquire a swarming fever, and out they *will* go. A great deal of this is caused through it being impossible, in certain hives, for any enlargement of the brood nest to take place, sometimes in consequence of the combs being choked with honey, or pollen, or from the hive being too small, and from various other causes that *are* known; but frequently every attempt to remedy them by giving space in, on, or around the brood nest, is futile, and, sometimes, the cause of mischief. 2nd, The bees *will* store honey in the body of the hive more readily than in any adjacent receptacle, but as such honeycomb is often interspersed with cells containing pollen, or brood, it is not considered best, and the separate system is consequently more generally practised. 3rdly, So long as the queen can find room for depositing her eggs she will be content with her brood-nest, but as, during a glut of honey the bees will occupy the newly-vacated, cells with it almost as fast as the young bees hatch out it will be evident that her 'circle' will be somewhat restricted, and hence a necessity for swarming. 4thly, We know of no objection to such a hive, except that, having 20 or 30 of the Langstroth frames, it would be far too large for use in this country. The idea, if the frames were of about one-fourth the area, would approximate to the Egyptian method of management, where a tube about four feet in length, similar to a drain pipe, is used, the bees building their combs in a somewhat circular form in longitudinal series. Four feet of such piping represent a hive containing about 31 frames, supposing them each to occupy one and a half inch of space (nearly), as is usual; but as the combs devoted to honey only would be thicker the number mentioned (30) is about correct. May we be allowed to remind our querist that, a stock of bees will flourish in any hive or receptacle if properly managed.—Ed.

NOTICES TO CORRESPONDENTS & INQUIRERS.

Needham.—Messrs. Neighbour, of Regent Street, and Messrs. Fortnum and Mason, of Piccadilly, are the two most prominent retail honey merchants in London. It may be worth while for you to write to them.

British Bee-keepers' Association.—As we were going to press we received from the Hon. Sec. the minutes of the various meetings which have taken place during the past month; these we will print *in extenso* in our next. The following are additional subscriptions to the Prize Fund:—Rev. P. V. M. Filleul, 10*s.*; C. E. Fletcher, Esq., 5*s.*; C. Tite, Esq., 10*s.* 6*d.*; R. R. Godfrey, Esq., 10*s.*; W. A. Kirchner, Esq., 5*s.*; Rev. D. W. Pennell, 5*s.*; W. H. Clark, Esq., 10*s.*; W. Watkin, Esq., 2*s.* 6*d.* A subscription list has been opened by the Association for the purpose of obtaining a tent and appliances for manipulation with live bees. The following sums have been promised:—Hon. and Rev. H. Bligh, 1*l.* 1*s.*; T. W. Cowan, Esq., 1*l.* 1*s.*; J. M. Hooker, Esq., 1*l.* 1*s.*; F. R. Jackson, Esq., 5*l.* The Hon. Sec. will be happy to receive further donations for the Fund.

*** We regret that various interesting letters, at present in type, are deferred to our next, through pressure caused by our reports of the various Shows.

THE

British Bee Journal,

AND BEE-KEEPER'S ADVISER.

[No. 43. Vol. IV.] NOVEMBER, 1876. [Published Monthly.]

Editorial, Notices, &c.

NOVEMBER.

Last month we recommended that all hives should be examined, floor-boards cleansed, and stocks united and fed where necessary, and now we beg to call attention to the necessity for packing up the bees for the winter which is rapidly approaching.

The first essential to health in the colonies is dryness of their hives, both within and without, and whether they be made of wood or straw, whether they be skep, or box-hive, it will be impossible to secure that essential, internally without perfect ventilation.

Ventilation is the great safeguard against all the diseases that afflict bees in winter, and considering that almost all are originated while the bees are in winter quarters, too much attention cannot be paid to the subject. It should be understood that 'ventilation' does not mean the preparation of a hive so that there shall be a constant draught through it, but that it shall be so constructed and arranged that the vapours generated by the bees shall escape without perceptible loss of heat. In hives where the vapours cannot escape *upwards* from the clustering bees, they disperse in the hive, and coming into contact with their cold walls (for the walls of a hive, unless the bees be clustered against them, are colder than the combs), will condense and form moisture, which, soaking into them, and running down to the floor-boards, will sodden them also, making both colder than before, and quickly causing mouldiness to the outer combs, and rendering their contents unwholesome to the bees.

In former numbers of the *Journal* we have said sufficient of the advantages of the quilt and air passage above it for box and bar frame hives, and we now beg to caution those who keep their bees in skeps against covering them with impermeable material. Perfect dryness from outward causes can be secured by having roofs of sizes that shall well overhang the floor-boards to prevent drifting rain and snow from effecting a lodgment thereupon, but the object would be much better achieved by having outer cases to enclose the hives individually. In the winter the appearance of an apiary is not of much consequence, as few visitors care to spend their time in viewing what is so uninteresting during the quiet and almost lifeless period; and, therefore, although tidiness is highly to be commended, we use whatever comes to hand to cover up our bees, boxes, if possible, with packing of hay or shavings, and anything in the way of carpet or sacking that we can lay hands upon, and over the whole the best roof we can afford to keep all dry. Roofs, whether of wood, metal, or earthenware, should never be allowed to rest close upon the coverings; milk-pans are often set close upon straw skeps, and the vapours rising into them and condensing, run into and spoil the straw work, and render the hives wet and uncomfortable.

A hive covered with sacking or similar material, should have some loose stuff between it and the milk-pan, to let the vapours blow away. The body of a hive should be well protected, and in this respect there is not much better protection than dead air enclosed around it, but we cannot help reverting to an old conviction that for winter wear the outer front, *i.e.*, the front casing, should be of glass, so that the sun's rays could occasionally warm up the inner case, and give the bees a chance of moving towards their stores. We know that this idea is not popular, but we are convinced that some day it will be so.

Winter Passages through the combs are important in frame-hives to enable the bees to get from comb to comb without being obliged to go from the cluster, and perhaps be chilled to death. They should be made about the centre of the frame, three inches from the top, half an inch in diameter will be sufficient, and when made, no further attention will be necessary, as the bees will not fill them up.

Reduced Entrances.—Entrances should be reduced to admit of the passage of two bees at a time—See Replies to Queries in this Number of *Journal*.

ALEXANDRA PALACE EXHIBITS.

We shall be glad to receive photographs of any hives or articles of bee furniture that have any novelty in them, with the exhibitor's or

inventor's description of them: we have asked this favour after every show, but have not met with the response we had hoped for.

We are promised a photo of the Griffin hive by W. N. Griffin, Esq., of Alphington, Exeter, the Hon. Sec. of the Devon and Exeter Bee-Keepers' Association, and have received one of the Alexandra hive, by J. M. Hooker, Esq., of Sevenoaks, who however wishes the description of it to remain in abeyance until next month, and these are the only exhibitors who have responded to our invite. In the *Grocers' Journal*, to which we have elsewhere called attention, will be found some quotations as to the value of advertising, and to Horace Greeley is attributed the remark that 'The man of business who spends more on his rent than he does on his advertising is a fool.' Now we have offered to advertise the wares of exhibitors for nothing in a *Journal* which circulates principally amongst those most interested, and the foregoing is the sole result.

MYSTERIES OF THE BEE-HIVE.

(*Continued from p. 75.*)

Our swarm having been duly housed in a comfortable hive, and placed upon the stand it is permanently to occupy, we should like to take a peep within, to see what kind of work is going on there; but as in the old-fashioned skep it is impossible to see more than a big bunch of bees hanging in a cluster, we will suppose that the swarm has been placed in a bar-frame hive of the latest construction: and, that they may be seen at the beginning of things, we will divest the hive of its quilt, and substitute for it, a sheet of glass which will lie close upon the top bars of the frames. Immediately, on being housed (or hived), the swarm will run to the hive's sides, and form a thick coating of bees over nearly the whole of its surfaces, huddling apparently anywhere to get out of the turmoil occasioned by the swarming and hiving, but in a short time the heat engendered will begin to inform them of the necessity for action. It will be remembered, that, prior to issuing as a swarm, the bees took the precaution of filling their honey-sacs from the cells in their old home, and now that they have adopted a new habitation in which there are no cells, they cannot if they would re-deposit the honey, and therefore it must remain within them.

Now so long as the bees preserve their individuality under these circumstances, they would suffer no great inconvenience, but would be incapable of producing wax with which to form the cells required; but being together in large numbers, they generate great heat, and as a direct consequence, the honey in their bodies undergoes a process of digestion, and is converted into wax, as under comparable circumstances the food of a well-fed animal is digested and becomes *fat*. The wax thus produced by bees does not, as with the fat of animals, accumulate within them, but issues from eight small openings in the under side of their abdomens, called wax-pockets,* in the forms of tiny scales or discs, which, being readily portable by the bees, is rapidly masticated and converted into comb.†

This involuntary secretion of wax, coupled with the necessity for combs, induces the bees to arrange themselves in order, so that the combs shall be formed in the most convenient positions, having regard to their immediate exigencies, and to the strict economy always observed in their construction,‡ and if we presently look through the glass covering at the frames, we shall see that the bees have mounted to the crown of their hive, and that they have arranged themselves in perfect order in lines, on each side of all the top bars their numbers will embrace. They hang by the first and second pairs of legs, their heads almost touching the glass, and looking like rows of beads on each upper edge of the frame bars, while with their bodies they completely hide the sides of them.

The bees so arranged have to sustain the weight of the whole swarm until comb is built beneath them, and from the bulk of the bees which hang suspended, one would suppose them to possess supernatural strength; but if the cluster be carefully examined it will be found that although the bees hang to each other by their legs, the mass is not nearly so compact as at first sight it would appear to be, nor are the bees by any means so 'profoundly inactive' as the author quoted (*see* note) would have us

* 'To see the wax-pockets in the hive-bee you must press the abdomen so as to cause its distention; you will then find on each of the four intermediate ventral segments, separated by the carina or elevated central part, two trapeziform whitish pockets of a soft membranaceous texture. On these the laminæ of wax are formed in different states, more or less perceptible.'—KIRBY AND SPENCE.

† In the late Major Munn's edition of *Bevan on the Honey Bee*, it is said, 'Whenever combs are wanted, bees fill their crops with honey and retaining it in them, hang together in a cluster from the top of the hive, and remain in a state of profound inactivity about twenty-four hours. During this time the wax is secreted, and may be seen in laminæ under the abdominal scales, whence it is removed by the hind-legs of the bee and transferred to the fore-legs. From them it is taken by the jaws, and after being masticated the fabrication of the comb commences.'

‡ A swarm when placed in a skep, whose central crown hole is simply covered over with a bit of tin or sacking instead of being filled up with a bung, will usually build crooked combs, through trying to avoid the hollow thereby permitted, whereas if correct guides be given they will readily adopt them.

believe them, for in their midst the builders are as busy as bees can be, and the labourers keep up a constant state of activity as they move about amongst the living ladders formed by the suspended bees.*

Very little work, as a matter of course, can be done until the wax is secreted, and begins to exude through the wax-pockets of the suspended bees; although from the first hiving leg-loads of bee-bread and plenty of honey will be brought in by foragers, which having been absent when the swarm issued, have been attracted to it on their return; or have gone out from the swarm itself, to seek the pollen, whose nitrogenous properties contribute so largely to the health of the swarm while comb-building is in progress.

When the wax begins to exude from the bees forming the cluster, the labourers run about amongst them, up and down the ladders (*see* note), and, taking it from the pockets, carry it to the comb-builders—

'The singing masons building roofs of gold,'—

by whom it (being warm and plastic) is moulded to the shape required. If a frame be taken from the swarm about twenty-four hours after it has been hived, it will be found that comb-building has been begun in three or four places along it, and as a rule, every beginning will be the foundation of worker-comb. The bees are good architects, and are very nice in their calculations; and it will be found that although the various beginnings are apparently at irregular distances from each other, yet when the combs are completed their judgment will be found to have been correct, for the cells will have been united, leaving no seam, and the whole will present a uniform appearance.

In comb-building, the bees are content at first to produce sufficient for the swarm to cluster in, *i.e.*, they build combs whose volume is of about the size of the original swarm, and unless the weather be fine, and the honey yield good, they seldom build more; but when these exist concomitantly, the swarm will continue to build, and the breeding of bees will go on at an enormous rate. Should unkind weather set in soon after a swarm is hived, and the bees be unable to obtain more than a hand-to-mouth living, they will build worker-comb exclusively, and when they have built sufficient to cluster in they will desist; and upon the return of fair weather, will store honey in their outer combs, thus shutting in their brood-nest and preventing its extension.* Should, now, a glut of honey ensue, they will build drone-comb in which to store it, or, as is often the case, they will throw off a virgin swarm delighting the owner, but very often ruining the stock, for since there will be no eggs deposited for about a fortnight afterwards, the bees present will choke up the brood-nest with honey, and the increase of bees will be prevented.†

(To be continued.)

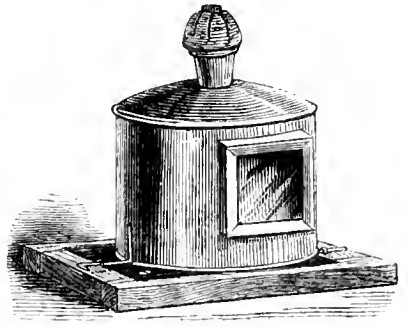
* When a cluster of bees is not sufficiently large to reach from the crown of a hive to the floor-board, strings of bees hanging to each other will be formed which will extend from the main body to a point near the hive entrance, forming ladders or suspension-bridges along which the working bees pass to their laboratory, until the combs are formed of sufficient depth to render such means of transit unnecessary. Practically, all clusters of bees may be looked upon as accumulated bee-ladders, varying in density according to the temperature within or about them.

* This 'doubling back' of the bees, brought about by circumstances over which they have no control, and in which instinct is scarcely all-sufficient for their preservation, is often the cause of serious loss in an apiary, and points to the necessity for interference by the bee-master. Instinct is a good guide, but is not infallible. To counteract these errors on the part of the bees it is necessary to give more space in the brood nest, either by extracting some of the honey, or by inserting empty worker combs. Straw-skepites would cut out some of the over-laden combs and let the bees build anew, but at such times they would build drone-comb only, and thus the remedy would be worse than the disease.

† Most experienced beekeepers recommend that a virgin swarm should be returned to the parent hive, knowing that its separate existence is inimical to the welfare of both; but we have not hitherto seen a reason assigned for the practice.

THE TIN BOTTLE FEEDER.

This, the outcome of numerous experiments, is simply a tin bottle with a piece of glass let into its side. The idea was first given to us two years since by S. Wyatt, Esq., of Tenbury, Worcestershire, who proposed a glass bottle with perfectly flat bottom, perforated in the centre with certain holes which should be slid

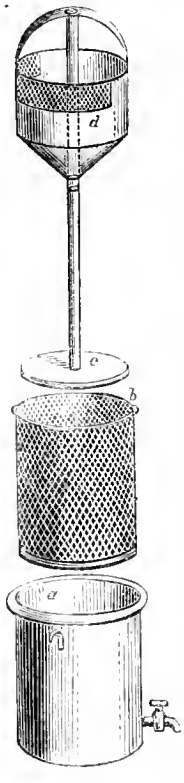


on or off a glass or other stage over the feeding hole. The difficulty which hindered its earlier production was the cost of bottles with rubbed and perforated bottom surfaces, and therefore, in lieu thereof, we have caused them to be made in tin. The holes in the bottom are five in number, and they slide over a narrow

slit in the face of the stage, being guided by stout wires fixed with studs, one of which is bent at right angles to indicate the number of holes to which the bees have access.

THE WAX EXTRACTOR AND HONEY STRAINER.

This machine will be readily understood by reference to the engraving. The bottom vessel is intended to contain water, which may be heated by boiling over a fire, or by immersion in a boiler or copper. In the latter case, if it be suspended on two cross sticks and the tap turned on, the boiling water will find its level within it. The second vessel is of perforated tin, and into it are crammed the various pieces of comb (previously compressed as much as possible), and when it is nearly filled, it is sunk into the boiling water in the vessel just described. The plunger is then put into the inner vessel, and by gentle pressure, the wax will leave the comb and float on the top of the water within the first described vessel. To skim it off the top, vessel, No. 3, is required, which being slid down the rod of the plunger will displace all the floating wax &c. in the inner vessel, and force it to form a deep annular stratum which, as the skimmer descends, will find its way through the perforations into the reservoir beneath them.



As a honey-strainer, the thing is invaluable to prevent stickiness and mess; the crushed comb being put into the perforated tin vessel through which the honey will drain, and from which it can be drawn by the small tap. Should the honey in the crushed comb be too thick, from coldness or other cause, to run out, it may easily be liquefied by suspending the whole in hot water until warmed and rendered liquid, when it could be lifted out of the water and set running by the tap.

HONEY MARKETS—'THE GROCERS' JOURNAL.'

The extraordinary yield of honey during the past season has more than ever demonstrated the necessity for increasing the channels through which the delicious nectar may find its way before the public; that appears to be the great difficulty, and after considerable thought on the subject we have determined on an appeal to the grocery trade through the medium of their own Journal. We have represented to the courteous Editor of that most useful organ (*The Grocers' Journal*) the advantages that will accrue to those who will act as middlemen in good localities, and he has most readily promised to allow the subject to be ventilated and discussed for the benefit of all concerned; and we would recommend those who have honey to sell, to take in the paper, and either advertise in its columns, or apply to those who do. The *Grocers' Journal* is published every Friday at No. 3 Little Tower Street, price one penny weekly, or post free for twelve weeks for eighteen-pence. We hope this notice will tend to solve the difficulty.

TO GET RID OF A FERTILE WORKER.

These pests have exercised the ingenuity of bee-keepers for many years, and no sure cure has been set forth, but we hope to show a method which will effect that object. It is well known that fertile workers do not differ in appearance from their sisters, and that unless caught in the act of ovipositing, their discovery is almost impossible, and how to get rid of them has hitherto been the puzzle. The doctrine of their appearance argues that they are hatched with ovaries partly developed, but have no sexual desire; hence, while partaking somewhat of the prerogative of the queen, they do not leave the hive, consequently, if the latter be taken to a distance, and the bees thrown out on to the ground, she, never having been abroad, would be lost, through not knowing her way back to the old stand. Now this method of losing a fertile worker is successful sometimes only; but as often as otherwise the pest does find her way back to the old stand, indicating that she had either flown before or that she was led back by the bees, the latter being very unlikely indeed.

Now, our method of treatment is thus: open the hive on a fine day and take out all the combs but the one or two which contain the brood of the fertile worker, and place it or them (the latter) on one side of the hive, taking care that no bees are removed on the combs taken out. Close down the hive which contains the fertile worker and her brood combs and carry it to a secluded corner of the garden, and in the meantime place an empty hive on its stand and fill up with the combs just before removed, giving, if possible, a comb of brood in all stages from another hive; and the work may be considered done.

The bees that have been carried away with the fertile worker, will as a matter of necessity, be all aged ones, and having flown, will when again on the wing assuredly return to the old stand deserting the fertile worker and the hatching drones, and, finding brood in the hive on the old stand will be contented; and if young bees come forth within a day or two queen-cells will be commenced, and with a little

nursing, the hive (if time will permit) may be brought round again.

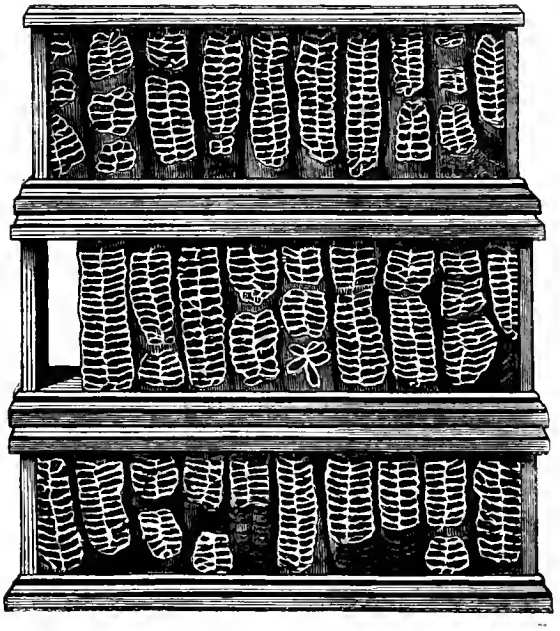
The poor fertile worker, however, will remain with her brood, her retinue being a few young drones, and perhaps a dozen workers, and if these be fumigated, she may be identified by dissecting the whole of them, or, if left to themselves, they will soon be discovered by a stronger stock, and be destroyed.—Ed. *B. B. J.*

CERTIFICATING EXPERTS.

A correspondent writes as follows:—'Rule 8 of the British Bee-Keepers' Association announces that the Committee will certificate and send out experts. Shall be glad to know when they are ready to hold an examination,—practical and theoretical, of course —as I intend to go in for a certificate.'—Ed. *B. B. J.*

DORSETSHIRE SUPERS AND USEFUL BEES.

We give an engraving of some cheap, useful, and handsome supers, exhibited at the Sherborne Bee Show,



by Mr. Robert Manfield, of Monk's Park, Corsham, Wilts, late of Bere Regis, Dorset. The *Western Gazette* referred to the exhibit in the following terms:—

'First on the stage, and first on the list of awards, were several beautiful supers, with glass sides and tops, fitted into neat gilt and oak moulding (made by Mr. Manfield, whose name has already been mentioned), sent by the Rev. Prebendary Warre, of Bere Regis, Blandford. Some of these were worked on a common flat-top straw hive, the stock in which gave 52 lbs. 10 ozs. of pure super honey, and was left with a store of 40 lbs. Others came from a bar-frame hive which yielded 68 lbs., although the store left for the bees' winter use weighed 40 lbs. The rev. gentleman's bees have a very interesting little history. Two years ago eight of his hives yielded over 400 lbs. of honey. After reserving sufficient for the use of his household and sending numerous presents to friends, he sold enough to realise 13*l.* 1*s.* 6*d.*, which was given towards the restoration of Bere Regis Church. This will show clergymen and others who are interested in Church and School work an easy means of raising money, and ought to teach the cottagers of the district how to increase their incomes. This year the money gained by the sale of Mr. Warre's honey is to be given towards a church clock for Bere Regis. As Mr. Manfield (who is butler to the Rev. Preb. Warre) has taken 242 lbs. in the comb from nine hives, and expects to get at least 100 lbs. of run honey from the stocks before they are set by for the winter, there can be little doubt that the villagers will have reason to thank the useful little nectar-gatherers for a very acceptable contribution. We would venture to suggest that, by way of acknowledgment, a bee and a suitable inscription should be placed upon the clock when it is erected. It must be remembered, too, that the results referred to have been obtained on the humane principle, without the destruction of the industrious occupants of the hives.'

Mr. Manfield's supers were 15⅓ inches long, by 5½ inches wide and 5½ inches deep. They were each fitted with ten bars, which were easily removed, guide-comb having been given to the bees to ensure straight working. The exhibit, which also took first honours at the Dorset County Horticultural Show, was elegantly adorned with small vases of flowers, and formed the most attractive feature in the tent, scores of persons loudly expressing their admiration of it. Many of our readers probably saw a specimen of the super on the sale-counter at the Alexandra Palace. The method of manufacturing them is most simple; the top and bottom frames being made of light gilt picture-frame mouldings—four pieces of glass of fitting sizes forming the walls, and a fifth piece the top, or cover. The corners are fixed with gold paper, giving them the appearance of solid pillars, the bars rest on the glass at the top and the cover lays over them and is removable to permit of storifying as exhibited in the engraving.

BRITISH BEE-KEEPERS' ASSOCIATION.

Committee Meeting held at No. 15 Beaufort Buildings, Strand, 4th September, 1876. Present, Rev. J. G. H. Hill, Messrs. T. W. Cowan, J. M. Hooker, J. Hunter, G. Walker, and the Hon. Sec. Mr. Cowan, in the chair. The minutes of the previous meeting having been read and confirmed, the Secretary reported a list of gentlemen who had kindly consented to act as Judges at the Alexandra Palace Exhibition. It was resolved, 'That no exhibit be disqualified by the Judges without reference to the Committee; with this reservation the decision of the Judges shall be final.'

The Secretary was requested to invite a gentleman to Judge the Essays in Class 33.

A letter was read from the Lincolnshire Apiarian Society asking for assistance, and the Secretary was instructed to forward a guinea towards the Prize Fund for that Society's Show at Grantham.

Committee Meeting held at No. 15 Beaufort Buildings, Strand, September 13th, 1876. Present, Mr. Cowan (in the chair), Messrs. Abbott, Atlee, Cheshire, Edwards, Henderson, Hooker, Hughes, Hunter, Neighbour, Walker, and the Hon. Sec. The minutes of the previous meeting were read and confirmed.

The Secretary reported that three more gentlemen had accepted the office of Judges; he also read the award in Class 33, for the best MS. Lecture on Bee-keeping; and in accordance with the option allowed them by the Judge, and there being no sufficient competition in this class, it was resolved, 'That the Essay of "Excelsior" be returned without comment of any kind.' Further necessary arrangements were then made for the requirements of the Show, and the Committee separated.

Annual General Meeting, held at the Alexandra Palace on Friday, September 15th, 1876. Present, the Hon. and Rev. Henry Bligh, Rev. J. D. Glennie, Rev. J. G. H. Hill, Rev. Geo. Raynor, Messrs. C. N. Abbott, Atlee, Rose, Carr, Cheshire, Cowan, Desborough, Edwards, Henderson, J. M. Hooker, Hughes, Hunter, Neighbour, Seaman, G. Walker, and the Hon. Sec. and others. Rev. J. D. Glennie in the chair.

The minutes of the last Annual General Meeting and of the Extraordinary General Meeting held on 15th June, 1876, were read and confirmed.

Mr. Cowan, by request, gave a brief report of the work done by the Association during the past twelve months.

It was resolved, 'That Earl Granville be invited to accept the presidency of the Association for the coming year.' Resolved, 'That in the event of Earl Granville not consenting to accept the presidency, the Committee be empowered to make the best provision possible.' After considerable discussion on the subject of the election of Vice-Presidents, the meeting adjourned till the next day, at 4 p.m.

On re-assembling on Saturday, 16th September, Mr. Cowan was unanimously voted to the chair. It was then resolved, 'That the whole of the Vice-Presidents on the list last year be re-elected, subject to their consent.'

The following gentlemen were elected to form the Acting Committee for the year ensuing, viz., Rev. J. G. H. Hill, Messrs. C. N. Abbott, C. Atlee, F. Cheshire, W. H. Clark, T. W. Cowan, C. H. Edwards, W. Freeman, W. O. B. Glennie, G. Henderson, J. M. Hooker, J. Hunter, F. R. Jackson, G. Minson, A. Neighbour, and G. Walker.

It was proposed by Mr. Hooker, seconded by Mr. Hunter, and resolved, 'That Mr. W. O. B. Glennie be the Treasurer for the year.'

Mr. Cowan proposed and Mr. Hunter seconded, 'That Mr. Fox Kenworthy be re-elected Honorary Secretary.' —Carried. A vote of thanks to Mr. Kenworthy for his services as Hon. Sec., and to Mr. C. N. Abbott, the late Treasurer, was proposed by Mr. Cowan, seconded by Mr. Carr, and carried unanimously, and those gentlemen briefly acknowledged the compliment.

It was proposed by Mr. Cowan, seconded by Mr. Abbott, and resolved, 'That the best thanks of this Association be accorded to the Judges at the Exhibition of 1876.'

Mr. Abbott drew the attention of the meeting to the necessity of something being done by the Association to assist other Apiarian Exhibitions in various parts of the country, and suggested that a tent might be procured for the manipulation of live bees at such Shows.

A vote of thanks to the Chairman was proposed by Mr. Hunter, seconded by Mr. Desborough, and carried unanimously.

Committee Meeting held at No. 15 Beaufort Buildings, Strand, 28th September, 1876. Present, Mr. Cowan, in the chair, Messrs. Atlee, Freeman, Hooker, Hughes, Hunter, Jackson, and the Hon. Sec. The minutes of the previous meeting were read and confirmed.

The Secretary reported that Earl Granville had replied, that he was unable to accept the office of President, and that he regretted his inability to do so; and after a little discussion on the question of the vacancy the matter was left for further consideration at the next meeting. The Secretary also reported that eight gentlemen had accepted the invitation to act as Vice-Presidents, while four others, members of the Acting Committee had declined to do so.

It was resolved, that the Earl of Lucan and Viscount Ranelagh be added to the list of Vice-Presidents, they having kindly intimated their consent.

A letter was read from Mr. W. H. Clark stating that business engagements would prevent his acceptance of a seat on the Committee.

A letter having been read from a gentleman who wished the Committee to grant him a silver medal instead of a money prize of 2*l.*, awarded to him in 1875, which he offered to return, it was decided with regret that the Committee had not the power to accede to the request.

It was proposed by Mr. Hunter, seconded by Mr. Atlee, and resolved, 'That a silver medal be awarded to the Hon. and Rev. Henry Bligh for the splendid harvest of honey from one hive of bees exhibited by him in Class 36.'

The Secretary was instructed to order the requisite number of medals, as awarded at the Show.

The subject having been brought up at the General Meeting on the 16th inst., it was resolved that a Special Fund be raised to furnish the Association with a tent and necessary appliances for the manipulation of live bees at Apiarian Exhibitions, and the Secretary was requested to appeal for subscriptions for that purpose.

A Subscription list has been opened for the purpose of obtaining a tent and appliances for manipulation of live bees in accordance with the Resolution above referred to. The Honorary Secretary will be happy to receive Donations for this fund; the following sums have already been promised:—Hon. and Rev. Henry Bligh, 1*l.* 1*s.*; Thomas W. Cowan, Esq., 1*l.* 1*s.*; J. M. Hooker, Esq., 1*l.* 1*s.*; F. R. Jackson, Esq., 5*l.*; Rev. P. V. M. Filleul, 10*s.*; C. E. Fletcher, Esq., 5*s.*; C. Tite, Esq., 10*s.* 6*d.*; R. R. Godfrey, Esq., 10*s.*; W. A. Kirchner, Esq., 5*s.*; Rev. D. W. Pennell, 5*s.*; W. H. Clark, Esq., 10*s.*; W. Watkin, Esq., 2*s.* 6*d.*

Thursday, October 26. A Committee meeting was held at 15 Beaufort Buildings, Strand. Present—Mr. Cowan in the chair, Messrs. Walker, Glennie, Atlee, Neighbour, and Hunter. A report was read from the Hon. Secretary, respecting the state of the funds of the Association. It was resolved to forward circulars to those who had promised donations to the Prize Fund, and to make application to those members who had not paid their subscriptions for the current year.

APIARIAN EXHIBITION, WORCESTER.

This Show, the closing one of the season, held in connexion with the Autumn Flower Fruit and Root Show of the Worcestershire Agricultural Society, took place in the Market Hall, Worcester, on the 16th and 17th ult.; and, as was expected, proved quite the attractive feature in the Hall.

This being the first of anything in the shape of an Apicultural Exhibition on a large scale may be considered a complete success, and the newly formed 'Worcestershire Bee-Keepers' Association' must be congratulated on their endeavours to make popular so profitable and interesting a subject as bee-keeping.

The extensive collections of hives on bar-frame and other principles, sent by Mr. James Lee, Bagshot, Surrey, Mr. C. N. Abbott, the famous Bee-Master of Hanwell, Messrs. Neighbour and Sons, London, and by other makers, being carefully examined by the visitors to the show, leads us to think that bee-keeping as a science has taken a hold on the people of Worcestershire, many who attended the show admitting that they 'thought the new way must be the best after all.'

Returning to the Exhibition, the great attraction was two Observatory hives of Ligurian bees shown by W. B. Watkins, Esq. Ombersley, Droitwich, and an Egyptian hive of peculiar construction, somewhat resembling a large drain-pipe, and brought together with nine others full of bees by the above-named gentleman, from Caliob, Egypt, last winter.

There were also exhibited several honey extractors, one, an invention of Mr. C. N. Abbott, called the 'Little Wonder,' specially commending itself to bee-keepers for both simplicity of construction and cheapness, costing we believe about 15*s.*

Owing to the late period of the year at which the show was held, the honey department was not so well represented as could have been wished. The exhibits that were shown were however very good, those calling for especial mention being some supers of

Mr. G. S. Lowe, Blockley, Worcestershire, Rev. J. H. Eld, Belbroughton, and a small sectional shown by Mr. F. Martin, Droitwich.

In the Class for honey some good samples were sent by Rev. J. H. Eld, and W. B. Watkins, Esq., but not for competition, the latter gentleman showing a large miscellaneous collection of things useful in an apiary. An Observatory hive containing combs of queen, worker, and drone cells was exhibited by Mr. H. Wall, and proved very interesting.

Much regret was expressed that there were no manipulations, specially when it became known that Mr. C. N. Abbott was present, who however, assisted by Mr. Watkins and several other gentlemen, did all they could to make amends by courteously explaining and answering the numerous inquiries of the public as to the use of the extractor, the advantages of frame over other kinds of hives, and the Ligurian over our common black bee, and of getting the bees to deposit honey in supers of which the sectional are the most approved make, being readily available for table use, or as being most attractive for sale. Exhibitions of this kind are most beneficial, as showing what can be done by the bee-master over the bee-owner, and proving that bee-keeping as a scientific pursuit is at once most profitable and interesting. We trust the success that has attended the Worcestershire Association in this their first attempt will further stimulate them and induce others to join them in placing bee-keeping in its proper position in the county.

The principal supporters of the Bee Show, in contributing both prizes and time—the latter quite as necessary to success as the former—were Lady Georgina Vernon, Mrs. Rylands, Sir R. P. Amphlett, Rev. J. H. Eld, Rev. W. W. Douglass, W. B. Watkins, Esq., H. B. Holl, Esq., E. C. Hancock, Esq., J. J. Tomson, Esq., Mr. H. Wall. The Worcestershire Agricultural Society also contributed to the Prize Fund.

The judges were Messrs. W. B. Watkins, A. H. Martin, and H. Hall, for hives. Messrs. W. B. Watkins, A. H. Martin, C. N. Abbott, for honey. Their awards are as under:—

HIVES.

Class 1.—For the best observation purposes:—1st, Messrs. Neighbour and Sons, 149 Regent Street, London, winning with their Alexandra Palace hive, in shape of a cross. Highly commended, Mr. James Lee, Bagshot, for a small observatory hive, for taking to flower shows, &c.

Class 2.—For the best bar-frame hive:—1st, Mr. C. N. Abbott, with Prize Crystal Palace hive; 2nd, Mr. James Lee, one of his taper frame hives.

Class 3.—For the best skep or box hive, for depriviug purposes, suitable for cottager's use:—1st, Mr. James Lee, for his cheap Woodbury, 4*s.* 6*d.* Highly commended, Mr. J. Lee, for his taper frame, 5*s.* 6*d.*

Class 4.—For the cheapest and best super for general use in an apiary:—1st. Mr. James Lee, with his sectional supers; 2nd, Mr. J. M. Hooker, with his ditto.

HONEY.

Class 5.—For the best super honey, net contents 20lbs., or over:—1st, Mr. G. S. Lowe, Blockley, Worcestershire, with a bell-glass super; Mr. G. Fawkes, Bransford, Worcester, with a square box super.

Class 6.—For the best super of honey, net contents under 20lbs., and not less than 6lbs.:—1st, Rev. J. H. Eld, Belbroughton, Stourbridge, with a straw super, of splendid honeycomb; 2nd, Rev. W. W. Douglass, Salwarpe, Droitwich, with a sectional. Highly commended, Rev. J. H. Eld, for straw super.

Class 7.—For the best exhibition of super honey in the comb, the produce of one apiary:—1st prize not awarded, there being no competition; 2nd, Mr. G. Fawkes, Bransford, Worcester.

Class 8.—For the best specimen of run honey, in glasses containing from 5 to 10lbs.:—Mr. Frederick Martin, Hanbury, Droitwich.

Class 9.—For the best specimen of pure beeswax in cakes of not less than 2lb.:—Mr. John Cartwright, Hanbury, Droitwich.

Class 10.—For the largest and best collection of hives, bee furniture, bee gear and appliances:—1st, Mr. James Lee, Bagshot, Surrey; 2nd, Mr. C. N. Abbott, Hanwell. [*Communicated.*]

ODIHAM BEE AND HONEY EXHIBITION.

I ask the favour of your inserting the enclosed extract from the *Southern Gazette*, of an exhibition of apicultural appliances at the Odiham Horticultural Show, which was held on the 28th August. My reason is, to show what a good effect may be worked in the public mind even by an individual if he takes up the cause. Added to the testimony of the press, I have received numerous proofs that my exhibit has made a deeper impression on the public who saw it than I could ever have expected, and I trust those members of our Association who have not yet made an attempt of the kind will not fail to do so, either as a separate affair, or, as I did, in connexion with a local horticultural show.—W. HUNT.

'The novel exhibition of bees and bee-gear, brought over at considerable expense and trouble by Mr. Hunt, of South Warnborough, was much admired, and the exhibitor deserves to be complimented on his spirited attempt to introduce a more humane, and certainly, as it appears, a more successful system of treating that useful little insect, the honey-bee. The Committee very properly awarded him a special prize for this exhibition. It would be impossible to describe the numerous appliances shown; it is sufficient to say that each little, although simple, contrivance had its use in the modern system of bee-keeping, and Mr. Hunt kindly stood by his exhibit to explain to a crowded audience the use of the various articles he had brought. Special mention, however, must be made of a machine called a honey-extractor, kindly lent by the inventor, C. N. Abbott, Esq., and called "The Little Wonder." By the use of this machine the bee-keeper is enabled at any time to get the honey from his bees without destroying them or their combs. . . . The fine exhibit of crystal honey must not be forgotten, as it attracted much attention and was eagerly bought up. Doubtless the sight of this stand must have made a deep impression among those who patronise the brimstone match, especially when they compared in their own minds the contrast between this exhibit and the miserable discoloured mixture, called honey, which they get on the old plan. The living bees of various kinds in glass unicomb hives were much admired by all; in fact, the above bee exhibit appeared to be the most attractive feature of the show.'

LOCAL SECRETARIES can assist the general executive by getting their societies affiliated to the Central Association. If each county club paid a guinea or two per annum, the Treasurer would soon have a better balance-sheet to show. In return, they should be entitled to the use of the tent and other apparatus it is proposed to purchase.

THE BEES.

Book I.

PREFACE.

THE Subject of the following Sketches, however feeble may be their execution, is perhaps the most interesting, and worthy our attention, of any in the whole range of natural researches. It has been held forth to admiration by all the ancient poets and philosophers, and invested with a species of divinity by the matchless pen of Virgil. The Author's motives for obtruding these sketches upon the public, he respectfully submits to the consideration of his candid readers.

Led by early habits, and inclination, to the study of Nature in all her varied forms, he pursued that study as the groundwork on which to build professional information; the derangements of any system being only to be learned by a comparison with its healthy and uninjured state. Amidst the labours of an extensive practice, he found in the renewal of his youthful occupations a pleasing and innocent amusement, soothing the harassed mind, and lessening the fatigues of many a tedious solitary journey. As the father of a numerous family, he was anxious to render his amusement subservient to their instruction; and to give them that bias to observe and admire the economy of Nature, even in her minutest parts, which he had himself received from the best of parents. A bias truly invaluable, whether as tending to enlarge, and harmonise the imagination; or as it leads the young mind, through the contemplation of terrestrial wonders, to sentiments of praise and adoration of their heavenly Author.

What was originally intended for the use of his Children only, some partial Friends have urged him to lay before the Public; forgetting, like musical *Amateurs*, in the novelty of the air, and the excellence of the instrument, the feeble powers of the performer. Rash indeed must appear the inexperienced Musician, who dares to touch the sacred lyre of Maro, and even those chords, on which he rested his claim to immortality. Yet much may be said in extenuation of this seeming boldness. Even in the Augustan Age, so justly celebrated for its transcendent poets, and historians, general Science lay torpid and unimproving; each Writer copying implicitly the doctrines of his predecessors. Virgil himself, though abundantly fraught with all the learning of that memorable era, partook also of its imperfections; as will be shown in their appropriate places. Far from aspiring to emulate his fame, the Author would consider his illustrious Model as a venerable Legislator, in the republic of letters, whose laws were the best that could possibly be devised from the infant state of knowledge in his day. Himself he offers as a much humbler member of the same community, who would propose an explanatory, and corrective Act, suited to the enlarged views, and altered aspects, of the present enlightened period.

Another circumstance may somewhat tend to palliate his presumption. While the Bees of other nations have been able to boast their zealous, and patient investigators in Maraldi, Swammerdam, Reaumur, and Huber, and a poetical panegyrist in the elegant Vaniere; yet in this birth-place of free Enquiry, and of the immortal Bacon, scarce one *scientific* work has been devoted to the service of these valuable insects. Nor, except perchance "to point a moral, or adorn a tale," hath the British Muse deigned to present one garland at their shrine.

To interweave with their history, and management, the latest discoveries, and improvements in this branch of knowledge; to invite the more general culture of a stock, requiring the least capital, labour, or expense in maintenance of any in the Farmer's yard, and within the reach of the poorest Cottager,—to rescue from unmerited and *impolitic* destruction the lives of an industrious race, which are spared by the now barbarous slaves of Egypt, and of Greece,—and, above all, "to teach the young idea how to shoot," and "look through Nature up to Nature's God,"—are the objects of the present poem. If the Author be accused of wantonly transgressing the strict rules of criticism; if his similes, and digressions are too often irrelative, trite, or tedious; he can only plead a wish to vary the dull uniformity of his subject, and multiply the sources of amusement, or instruction to his youthful readers. He would bring to their recollection some favourite classic theme, or some historical epoch, worthy their admiration or abhorrence. He would explain the phenomena of Nature from the best and chastest authorities: and he would anxiously warn their waxen minds against the fascinating theories of French philosophers, and politicians, from whom alone, and not from the Arms of that ambitious nation, Britons have cause for fear. In daring to controvert the doctrines of Writers of the first talents, and celebrity, he acts from the conviction that the danger of misleading is in a direct ratio to those talents, and that celebrity; and that a feeble advocate becomes strong in the cause of Truth. Where fame is the object of the poet's pen, the rule of Horace, "nonum prematur in annum," may be highly expedient, and his accompanying observation strictly just;

"Delere licebit
"Quod non edideris: nescit vox missa reverti."

Writing, however, for usefulness alone, and holding, as it were, the torch to fresh discoveries, and improvements, in this branch of science, the Author does not feel justified in delaying that usefulness by attempts at farther polish or correction. He ushers the first book of his work into the world, with all its imperfections; and the remaining parts will be published as speedily, and in as quick succession, as his own necessary avocations, and those of his printer, will admit.

NOTES TO BOOK I.

Line 17. *Who once your* Phillips]
"Thy native theme, and boon inspirer too,
"*Phillips*, Pomona's bard." Thomson's *Autumn*.

21. *Who heard, with* Dyer]
"Could I recall those notes, which once the Muse
"Heard at a shearing near the woody sides
"Of blue-topp'd Wrekin." Dyer's *Fleece*.

25. *Or late with* Bloomfield] Author of *The Farmer's Boy*.

36. *And on* Menander's *lip*]
"The very bees, O sweet Menander, hung
"To taste the Muses' spring upon thy tongue."
Translation of Greek Epigrams, in the Spectator.

37. *Hymettus shines*] . . . "Hymettia sole
"Cera remollescit, tractataque pollice multas
"Flectitur in facies." Ovid.

39. *And honey'd Hybla*]
"Hyblæis apibus florem depasta salicti." Virgil.

49. *Their order'd state*] "So work the honey Bees
"Creatures, that by a ruling nature teach
"The art of order to a peopled kingdom;
"They have a king, and officers of sorts,
"Where some, like magistrates, correct at home;
"Others, like merchants, venture trade abroad;
"Others, like soldiers, armed in their stings,
"Make boot upon the summer's velvet buds;
"Which pillage they with merry march bring home
"To the tent-royal of their Emperour;

"Who, buried in his majesty, surveys
"The singing masons building roofs of gold,
"The civil citizens kneading up the honey;
"The poor mechanic porters crowding in
"Their heavy burdens at his narrow gate;
"The sad-ey'd justice, with his surly hum,
"Deliv'ring o'er to executors pale
"The lazy, yawning Drone." SHAKESPEAR'S *Henry V.*

53. *And thou, sweet* THOMSON] "Ah! see where robb'd, and murder'd, in that pit
"Lies the still heaving hive! at evening snatch'd,
"Beneath the cloud of guilt-concealing night,
"And fixed o'er sulphur; while, not dreaming ill,
"The happy people in their waxen cells,
"Sat tending public cares, and planning schemes
"Of temperance for Winter poor, rejoic'd
"To mark, full flowing round, their copious stores.
"Sudden the dark oppressive steam ascends,
"And, us'd to milder scents, the tender race
"By thousands tumble from their honey'd dome,
"Convuls'd and agonizing in the dust."
THOMSON'S *Autumn.*

87. *Dear Shade!*] The Author trusts he need offer no apology for paying this tribute of filial gratitude to the memory of a deceased Parent; whose private Virtues, public Spirit, and refined Taste, were well known to all who enjoyed the pleasure of his acquaintance.

95. *Where the light cloud*] See ADDITIONAL NOTE I.

98. *Each fleeting beauty*] The numberless changes in the appearance of the same objects, as produced by the sudden variations of light and shade, have been emphatically styled the "Veneres fugaces," or flying beauties of landscape; and afford an inexhaustible fund of amusement to the observant traveller. The magnificent group of Freyddin Hills, in Montgomeryshire, have presented to the Author at least fifty *distinct* pictures, and all well worthy of the painter's pencil.

107. *The soul-corroding fiend*] The mind of man, like the muscles of his corporeal frame, can neither acquire, nor retain its due tone and elasticity, when left in an inactive state. But the injury is not, as in that case, merely *negative*. We should rather compare it with the torpor of some internal organ, which thence derives an accumulated sensibility, and is easily hurried, by the slightest causes, into the most dangerous states of inflammation. The human mind ever *abhors a vacuum*; and happy are those, whose education and propensities have enabled them to fill that vacuum (for the busiest must have their intervals of leisure) with cheap and rational pleasures; instead of resorting to those, which ruin the Fortune, the Constitution, or even the Heart itself.

123. *And blue-eyed* BELAN] Under the direction of the Author's Father, the waters of the small brook, Belan, and some other petty rills, were so concentrated as to form a considerable torrent, dashing over artificial rockwork, not distinguishable when covered with moss and lichens, from a natural cascade. From thence the waters spread into a majestic lake, winding through the Bath, or Belan grounds, in Wynnstay Park; its edges skirted with lofty woods, where only a few years since some stinted hawthorns, thinly scattered, were almost the sole possessors of the soil. To those who can remember its then rude and rugged state, the change must appear the work of some potent enchanter; whose only spells, however, were industry and munificence, guided by the hand of taste.

141. *The sculptur'd stone*] Venus de Medicis.

146. *The Gothic fane*] The parish church of Ruabon is seen in the distance beyond the waterfall.

155. *The votive column*] On an eminence immediately above the Bath grounds stands a monumental column, 101 feet high, including the base and capital. It was erected to the memory of the late Sir WATKIN WILLIAMS WYNN, at the expense of his mother, and planned by the celebrated Mr. Wyatt. On the base is the following concise, but truly emphatic inscription—

Filio Optimo
Mater
Eheu! Superstes.

This pillar is, with great propriety, hid from the house, but is visible to all the neighbouring country.

164. *Mov'd, as by magic spell*] In Wynnstay Park trees of almost every age, and dimensions, and at every season of the year, have been removed to a considerable distance, with large balls of earth at their roots: and, by the aid of suitable machinery, again replanted, with the loss of scarcely a single tree. If the author mistakes not, the groups, surrounding the pillar, are of this description.

168. *His early doom*] The late Sir W. W. WYNN died at the early age of 41!

173. *And thou, sad Relict*] Lady WILLIAMS WYNN, widow of the late, and mother of the present Baronet.

182. *Beam'd in thy* WATKIN] This portrait, however defective in strength, or colouring, may claim the humbler merit of being an unexaggerated likeness.

217. *First the gray Willow's*] "..... pascuntur
"Et glaucas *salices*, casiamque, *crocumque* rubentem."
VIRGIL.

Of all the spring flowers the catkins of the numerous species of Salix, or Willow, afford the earliest and most abundant supply of Farina for the bees, who may be observed constantly settling on these blossoms when the weather is favourable. The Bees are equally fond of the Corylus Avellana, Hazel.

218. *Or rob the Hazel*] See ADDITIONAL NOTE II.

227. *Anemone, that shuns*] Anemone nemorosa, Wood Anemone, expands its flowers in fine weather only, folding them up against rain. *Eng. Botany*, Tab. 355.

228. *And trim Oxalis*] Oxalis acetosella, Wood Sorrel, is a most elegant little plant, growing in the shade of woods and thickets. Its white petals are beautifully pencilled with purple lines; and the leaves are often tinted with purple, half unfolded, and forming a kind of natural umbrella. *Eng. Botany*, 762.

231. *While sweet Adoxa*] Adoxa Moschatellina, Tuberous Moschatell, emerging from its wintry bed of withered leaves, welcomes the Botanist in his early spring excursions. When young, and moist with dew, it has a faint musky smell. *Eng. Botany*, 453.

234. *Peeps forth young Pilewort*] The highly varnished golden flowers of Ranunculus ficaria, Pilewort, are among the earliest harbingers of spring in shady places. *Eng. Botany*, 584.

235. *Leontodons unfold*] Leontodon taraxacum, Dandelion, blows early in the spring, and continues throughout the summer. Its flowers form part of the Horologe, or Clock of Flora, unfolding at five or six in the morning, and closing them about sunset. See STILLINGFLEET'S *Calendar of Flora.*

244. *When gorgeous Caltha*] Caltha palustris, Marsh Marigold, splendidly adorns moist meadows, and the sides of rivers, with its large yellow blossoms. The country people hang them in bunches round their doors, or strew them on the ground, in honour of May-Day. *Eng. Botany*, 506.

247. *Stately Coltsfoot*] Tussilago petasites, giant Coltsfoot, or Butterbur, has the largest leaves of any British plant. Its purple, clustered spikes, mingled with the bright yellow of the Marsh Marigold, give a splendid variety to the appearance of the marshy grounds. *Eng. Botany*, 431.

249. *Pink-eyed Ladysmocks*] Cardamine pratensis, Ladysmock, or Cuckow Flower, with pale blossoms, faintly tinged with purple, abounds in rich meadows, and is frequently found *double* in the neighbourhood of Shrewsbury. *Eng. Botany*, 776.

251. *Brush'd from each anther's*] See ADDITIONAL NOTE III.

255. *Content themselves*] The old Bees most probably subsist on the remains of the last year's honey: for we can hardly suppose the early spring flowers capable of yielding that substance in a perfectly ripened state. We are hence enabled to explain why, in a cold, ungenial May, succeeding a series of warmer weather, hives are too frequently found dead by real famine, to the great surprise and disappointment of their proprietors, who but lately observed them perfectly well and thriving. In May, 1805, the Author lost two apparently healthy stocks, other avocations having prevented his feeding them as usual in such seasons. In both hives the cells were still full of farina; a clear proof that this substance is intended for the support of the young Bees *only*.

271. *Far earlier still*] See ADDITIONAL NOTE IV.

276 *Blest with*]
"His quidem signis, atque hæc exempla secuti
"Esse apibus partem divinæ mentis, et haustus
"Æthereos dixere." VIRGIL.

279. *Well might the* BARD] See ADDITIONAL NOTE V.

283. *A fabled race*]
"Illum adeo placuisse apibus mirabere morem,
"Quod nec concubitu indulgent, nec corpora segnes
"In venerem solvunt, aut fœtus nixibus edunt;
"Verùm ipsæ è foliis natos, et suavibus herbis
"Ore legunt." VIRGIL.

288. *With men fast form'd*] The Egyptians pretended that their ancestors sprung immediately from the mud of the river Nile.

289. *Or the fam'd steeds*]
"Ore omnes versæ in Zephyrum, stant rupibus altis,
"Exceptantque leves auras: et sæpe sine ullis
"Conjugiis, vento gravidæ, mirabile dictu!
"Saxa per, et scopulos, et depressas convalles
"Diffugiunt."—VIRGIL.

295. *With course unvarying*] For a particular account of the process of Bee-Incubation, see ADDITIONAL NOTE VI.

301. *While the fond*] See ADDITIONAL NOTE VII.

311. *Six radiant rings*] The belly of the Bee is distinguished by six rings, which sometimes shorten the body by slipping one over another; the breast is entirely covered with grey feather-like hairs, which become redder as the insect advances in age.

314. *Shoots her slim trunk*] For a description of these curious organs, see ADDITIONAL NOTE VIII.

326. *She seeks at once*] M. Maraldi assures us, that he has "seen Bees, loaded with two large balls of wax, re-"turning to the hive, the same day they became Bees." *Natural History of Bees*, p. 170.

328. *And bears within her breast*] The gullet of the Bee commences at the root of the proboscis, and, traversing the neck and breast, dilates into a fine bag, transparent as crystal, and about the size of a small pea, when filled with honey. In bees, caught on going out early in the morning, Mr. Hunter found this reservoir perfectly empty; but in others, who were returning from the fields, it was quite full of honey, some of which had passed into the stomach. Whatever time the contents had been retained, they still remained pure, and unaltered by any digestive process. *Philosophical Transactions for* 1792, p. 179. The greatest part of the honey is regurgitated and poured into the cells of the hive, as winter store for the community; and the remainder serves the Bee for nourishment.

339. *Whose numbers swell*] The proportion of labouring bees in a hive is very great indeed, their numbers varying from eight to twelve thousand, or upwards; while those of the Drones amount to a few hundreds only.

343. *Another tribe*] The DRONE, or *Male Bee*, is never seen before the end of April. He is one third longer, and somewhat thicker than the labouring Bee; his proboscis shorter, and the termination of his belly blunter, fringed with hairs, and *without* a sting. As he is never seen settling on any kind of flowers, or laying up honey in the cells, he most probably feeds at home, and fully answers the description given of him by the poet:—
"Immunisque sedens aliena ad pabula fucus." VIRGIL.
A still stronger proof of his inaptitude for labour, is the want of any groove in his thighs, to convey farina. Anatomical observations have clearly ascertained this tribe to consist of males, and consequently the *Fathers* of the insect state. They are all massacred early in the autumn, as will be shown hereafter.

351. *From the Lime's leaf*] Of the honey-dew on the leaves of the lime, maple, &c., more will be said in a future part of the work.

355. *These seeming idlers*] Mr. MORRIS, in the Transactions of the Society for the Encouragement of Arts, &c., for 1791, assigns the Drones an additional employment: for he assures us, that "they sit upon the eggs, as "the mother lays them in cells prepared for that purpose; "and that he has often seen them sit in a formal manner "on the combs, when the brood is hatching, while the "other bees were very busy at work."

373. *So the rude* CAFFER] We are told by travellers, that the inhabitants of Caffraria expose their superannuated people in the desert, leaving them only a cruse of water, and a scrip filled with food. Dr. SPARRMAN, however, endeavours to extenuate their crime, and supposes that they thus cruelly treat those alone, who have no children, nor near relations, to take care of them. *Voyage to the Cape, &c.*

385. *But mark, of regal port*] See ADDITIONAL NOTE IX.

389. *Not eastern Despots*]
"Præterea regem non sic Ægyptus, et ingens
"Lydia, nec populi Parthorum, aut Medus Hydaspes
"Observant." VIRGIL.

396. *The high-arch'd dome ascend*] The royal cells are very differently shaped from those of the other bees, being oblong spheroids, tapering downwards, and attached to the sides, or extremities of the comb; as will be shown hereafter.

403. *Long is her tapering form*] See ADDITIONAL NOTE X.

412. *His jet-black arms*] "In the possession of the "Speaker Onslow, was a Head of Edward, the Black "Prince, supposed to have been painted in the 14th cen-"tury. He is represented in black armour, embossed "with gold, with a golden lion on his breast; and wears "a hat with a white feather." WALPOLE'S *Anecdotes of Painting.*

427. *Queen of the pasture*] Those species of Ranunculus, or Crowfoot, which enamel the meadows, in early summer, with their shining yellow blossoms, contain a juice so acrid in their leaves, that cattle will not touch them, even in the barest pastures. Dr. Smith ingeniously observes, that though improper food for cattle when eaten alone, they may probably prove, when mixed with less pungent herbage, an useful stimulus to those animals, as salt does to others. *Eng. Botany*, 515. As Nature, however, seems to do nought in vain, we can hardly suppose so very large a proportion of the herbage intended for

this purpose only. May it not also, as Nature is ever fond of multiplying her benefits, be meant as provision for the industrious bees, who are constantly crowding round it?

433. *Now lightly buoyant*] Ranunculus aquatilis, Water Crowfoot, displays its white flowers and glossy leaves, on the surface of the water, in copious and elegant profusion. The leaves exhibit a curious, though not singular phenomenon in the vegetable world; those under water being divided into fine capillary segments, while those above are merely five-lobed, and grossly notched, like others of the genus. The former seem analogous to the gills of fish, which, by their innumerable folds, present an astonishingly extensive surface for the absorption of oxygen from a medium supplying it so scantily as water. *English Botany*, 101.

435. *Or now, unarm'd*] Ranunculus auricomus, Goldilocks, grows in woods and shady places. It has also the name of Sweet Wood Crowfoot, from its not having the acrimony of the other species. *Eng. Botany*, 624.

440. *Where lurks the fairy*]

"Where the bee sucks, there lurk I,
"In the cowslip's bell I lie."
ARIEL, *in* SHAKESPEAR'S *Tempest*.

442. *Veronicas in tufted verdure rove*] In May and June every hedge bottom and grassy bank is adorned with the bright blue blossoms of the Veronica chamædrys, Germander Speedwell; and the heaths, and sandy wastes, with those of the V. officinalis, Male Speedwell. *Eng. Botany*, 655 and 855.

445. *Low in the rill*] Veronica becaburga, Brooklime, enlivens the shallow streams with its dark blue flowers, and glossy leaves; and is usually the companion of Sisymbrium Nasturtium, Water Cresses. *Eng. Botany*, 655 and 855.

447. *A second, high*] Veronica hybrida, Welsh Speedwell, is one of our scarcest plants; but grows abundantly on that storehouse of rare plants, Breyddin Hill, Montgomeryshire, where it was found by Ray. *Eng. Botany*, 673. On the summit of this hill a column, near 60 feet high, was erected, in 1781, by a subscription of the gentlemen of that county, to commemorate the victories of the late Lord Rodney.

452. *The Clover's bloom*] Both sorts of cultivated clover, Trifolium pratense, Honeysuckle clover, and Trifolium repens, Dutch ditto, are much frequented by bees.

455. *On either Lamium's lip*] The blossoms of the Lamium album, and purpureum, white, and purple Dead Nettle, abound in honey; especially those of the former, which are often gathered by children, and the honey sucked out of the tube. *Eng. Botany*, 768 and 769.

458. *Her amber cups*] Galeopsis versicolor, large flowered Hemp Nettle, though a rare plant in some countries, grows abundantly in the western part of Shropshire. Its tall, purple stem, and the striking purple spot on its lower lip, contrasted with the other yellow hues, render it far from unworthy of the garden. *Eng. Botany*, 667.

460. *Whose blossom'd Beans*] The highly fragrant blossoms of the Beanfield are generally crowded with bees; yet it has been observed that they afford those insects honey very sparingly; (DICKSON'S *Agriculture*). This, if really true, affords an instance of *mistaken* instinct. The author has never seen them settling on the *pea;* and this observation is confirmed by others. The cause of this he has not as yet been able to ascertain. Probably the nectary is inaccessible to their trunks.

464. *The bright spurr'd Orchis*] The several common species of Orchis, with their variegated purple spikes, spur-shaped honey-tubes, and glossy, spotted leaves, highly ornament the woods, and pastures, in the months of May and June; but the flowers are wholly scentless.

465. *Yet when, in simpler stole*] The flowers of the Orchis bifolia, Butterfly Orchis, are of a pale, greenish white. It has only *two* leaves of bright unspotted green, like those of the Convallaria majalis, Lily of the Valley, which it also emulates in fragrance, especially when moistened with the dews of evening. *Eng. Botany*, 22 and 1035. The common Hyacinth, or Hare-bell, usually inhabits the same places, and flowers at the same time. *Eng. Botany*, 377.

471. *The slyer Ophrys*] Ophrys apifera, Bee Orchis, affords a striking instance of Nature's kind provision against the depredations of insects; who, when hovering near, might suppose the nectaries pre-occupied by others of their own kind, the lower lip of the blossom resembling a small humble bee, and the side-lobes its wings. *Eng. Botany*, 283.

477. *When thy own Trefoil*] Menyanthes trifoliata, Buckbeau, is perhaps the most elegant even of our aquatic plants, which principally vie in beauty with the most favoured exotics. Attentive to ornament, as well as use, Nature hath enlivened the dreary bog with the bright polished leaves, red buds, and beautifully fringed streaky blossoms of this plant; and floats on the stagnant ditches the smooth, pectinated leaves, crowned with spikes of purple, yellow-eyed flowers, of the Hottonia palustris, Water Violet, which has very much the air of a tropical plant. *Eng. Botany*, 364.

484. *Th' embattled Sedge*] The different species of Carex, Sedge, crowned with long, pendulous, male spikes, must afford a considerable quantity of farina; and also those of the Arundo phragmites, common Reed, which overhangs the margin of ponds and ditches. In Autumn these are still more ornamental to the fens, waving high above all other herbage their purpled silvery plumes. *Eng. Botany*, 401.

489. *The Sloe uprears*] The bloom of the Prunus spinosa, Sloe, or Blackthorn, precedes that of the Hawthorn, covering the black, thorny branches in great profusion, before any leaves appear. *Eng. Botany*, 842.

492. *His blossoms of the May*] The blossoms of the Hawthorn, from their general appearance in that month, are usually termed the MAY.

493. *The warrior, Cornel*]

". . . . Et bona bello
"Cornus." VIRGIL.

"Reclining on her cornel spear she stood." DRYDEN.

The stem of the Cornus sanguinea, wild Cornel, or Dogwood, is of a deep red, and tufted with greenish white flowers. *Eng. Botany*, 249.

494. *And Holly's leaves*] The bright and prickly leaves of the Ilex aquifolium, Holly, are well known. The bark, fermented, and washed from the woody fibres, makes the common bird-lime. *Eng. Botany*, 496.

497. *There light Viburnums*] The Viburnum lantana, Wayfaring Tree, is distinguished by its mealy twigs and leaves; and the V. opulus, Water Elder, has a variety with round bunches of abortive flowers, which is the Guelder Rose of our gardens. *Eng. Botany*, 331, 332.

499. *While pithy Elder*]

". . . th' Elder's pithy stem." PHILLIPS.

Though the fragrant bloom of the Elder is constantly crowded with bees, it is said that other insects will not attack cabbages, fruit-trees, &c., when whipped with its leaves and branches. Its efficacy, however, is rather doubtful. An usual mode of feeding bees in autumn or spring, is by filling the scooped stem of this shrub, in the form of long boats, with honey, or dissolved sugar, and pushing them into the hive. *Eng. Botany*, 476.

503. *See Broom display*] Spartium scoparium, common Broom, has been recommended, ever since the time of Pliny, as valuable to bees. Mr. Bradley speaks in the

highest terms of its being planted for this purpose; but gives a decided preference to the Sp. junceum, Spanish Broom, one acre of which would, according to his calculation, afford sufficient honey to maintain ten stocks.

505. *Or prickly Furze*] Ulex Europæus, Furze, or Whin, with its bright yellow, honey-scented blossoms, spreads a sheet of "vegetable gold" over our heaths and commons. Linnæus is reported, on his first arrival in England, to have fallen on his knees, in admiration of this spectacle. He lamented that he could hardly preserve the Furze alive throughout a Swedish winter, even in a Green-house. *Eng. Botany*, 742.

511. *Old Cambria's Ornus*]

"Steriles saxosis montibus Orni." VIRGIL

Pyrus aucuparia, Mountain Ash, or Quicken Tree, is supposed to have been the *Ornus* of the ancients. "In "ancient days, when superstition held that place in "society, which dissipation and impiety now hold, the "Mountain Ash was considered as an object of great "veneration. Often at this day a stump of it is found "in some old burying-place; or near the circle of "a Druid temple, whose rites it formerly invested with "its sacred shade. Its chief merit now consists in being "the ornament of landscape." GILPIN'S *Forest Scenery*, Vol. I. p. 38.

"In summer, the light green foliage, and in autumn, "the glowing berries which hang clustering upon them, "contrast beautifully with the deeper green of the pines." *Ibid.*

514. *With her the White Beam*] Pyrus aria, White Beam, grows on Freyddin Hill, but only on the steepest part, inaccessible even to goats.

521. *From both descended*] Pyrus hybrida, bastard Service, is supposed by Linnæus to be a new tree, produced between the P. aria and aucuparia, having the pistils and flowers of the latter, and the foliage of the former. It is said to grow upon Castell Dinas Brân, near Llangollen; but Mr. Griffiths could only find what appeared a mere variety of P. aria. *Botanist's Guide, by* TURNER *and* DILWYN.

526. *High-born Hoel*] Castell Dinas Brân was once the residence of Myfanwy Fechan, a beautiful and accomplished female, descended from the house of Tudor Trefor. She was beloved by Hoel ap Einion Llygliw, a bard of illustrious family, who addressed to her a charming ode.

531. *Germander's lip*] Teucrium Chamædrys, Wild Germander, is not a common plant, but grows abundantly on some old ruins, especially those of Wenlock Abbey, and Whittington Castle, Shropshire.

531. *Hermit flower*]

"To seize the hermit flower I sought,
"And bear her from her stony bed."
LANGHORNE'S *Wall-Flower*.

Cheiranthus fruticulosus, wild Wall Flower, much more commonly decorates old walls with its bright yellow, fragrant blossoms.

537. *While Taste and Virtue*] At the charming retreat of Lady Eleanor Butler, and Miss Ponsonby, in Llangollen Vale, the bees have found a truly hospitable asylum. Further particulars will appear in the third Book.

552. *Alike ye labour*]

"Omnibus una quies operum, labor omnibus unus."
VIRGIL.

561. *And bid alike*] See ADDITIONAL NOTE XI.

572. *Seven fleet summers*]

"Neque enim plus septima ducitur æstas!" VIRGIL.
See ADDITIONAL NOTE XII.

574. *As swift, or slow*] "It is certain that the natural "measure of time depends solely on the succession of our "ideas. Were it possible for the mind to be occupied with a "single idea for a day, a week, or a month, these portions "of time would appear to be nothing more than so many "instants. Hence a philosopher often lives as long in "one day, as a clown or a savage does in a week or a "month spent in mental inactivity, or want of thought." SMELLIE'S *Philosophy of Natural History*, Vol. I. p. 519.

580. *In life's first hour*] "We have seen her the same "day issue from the cell, and return from the fields, "loaded with wax, like the rest." WILDMAN.

583. *Hath ripe Experience*] See ADDITIONAL NOTE XIII.

619. *Till her own Leo*] Under the auspices of this celebrated Pontiff, as an elegant historian observes, "Italy "began to compare, in arts, and letters, her modern with "her ancient state, and to contrast the age of Leo X. "with that of the second Cæsar."—Leo appears to have paved the way for the establishment of religious and scientific Truth in two very opposite ways; *directly* by his liberal Patronage of every Science, and its Professors; and *indirectly* by his Sale of Indulgences, which exposed to ridicule and contempt, the sacred character of the Church of Rome, and thereby removed the corner-stone of Ecclesiastic Tyranny, and Superstition.

624. *Arno's flowery vale*] Florence, situated on the banks of the Arno, has been remarkable in modern history for every species of science, and every product of art; particularly under the beneficent rule of Lorenzo de Medicis, who deservedly gained the appellation of "Father of the Muses."

633. *So Arethusa*]

"Sicanio prætenta sinu jacet insula contra
"Plemmyrium undosum: nomen dixere priores
"Ortygiam. Alpheum fama est huc, Elidis amnem,
"Occultas egisse vias subter mare; qui nunc
"Ore, Arethusa, tua Siculis confunditur undis."
VIRGIL.

645. *Shall envious Doris*] Virgil, in his tenth Eclogue, addresses the following wish to Arethusa:

"Sic tibi, cum fluctus subter labere Sicanos,
"Doris amara suam non intermisceat undam;"

"Doris is here used for the sea itself. She is called "*amara*, because the sea water is bitter." *Note by* MARTYN.

The sea is embittered by the muriates of Lime, and Magnesia, which it contains; as may be readily ascertained by comparing a solution of pure *rock* Salt, with one of *bay* Salt, or evaporated Sea Water.

A BEE TREE.

In the spring of 1872 a swarm of bees took possession of a black poplar which had been bored by the green wood-pecker. There they remained until the tree showed evident signs of decay, a curious enlargement taking place at that part of the tree occupied by the bees, the girth of the tree being about 6 feet above and below, and 7 feet 9 inches at the greatest part of the enlargement. This fall the proprietor, W. Long, Esq., who is an ardent lover of bees, determined to 'throw' the tree, preserving the part occupied by the bees. This has been done, and the natural hive removed to the apiary, where it now stands, some 8 feet high, the bees quite reconciled to their new position and altered circumstances. The tree at this part is very hollow, and no doubt contains a large quantity of honey. A swarm was found this spring in a hedge not far off, supposed to have issued from this stock. I should have stated, the tree was in a plantation not at all exposed to the sun.—CYPRIAN.

Correspondence.

*** *These columns are open to Subscribers, so that their queries, replies, correspondence, and experiences, may be* fully *and* faithfully *recorded; and for the discussion of all theories and systems in Bee-culture, and of the relative merits of all hives and appurtenances, that the truth regarding them may be ascertained. The Editor, therefore, must not be expected to coincide with all the views expressed by the various writers. All Correspondence is addressed to the Editor.*

A CHALLENGE.

If a score of your readers will do likewise, I will guarantee to obtain six new subscribers to the British Bee-Keepers' Association before the next annual subscriptions become due, in May; or, if I fail, I will pay 1*l.* 10*s.* to our honorary secretary. Those accepting the challenge can send you their names, Mr. Editor. Every little helps.—C. T.

SALICYLIC ACID.

In the September number of *Journal* your correspondent who describes his visit to the German apiary, says he extracts his prescription for the cure of foul brood from a paper given him by his friend; but that space prevents his giving further particulars. Is it not of such general importance as to warrant its translation and publication in the *Bee Journal?*—N. S. *Cowbridge, S. Wales.*

[We hope our esteemed correspondent will oblige by sending the fullest particulars. A letter from Captain Danyell on 'Salicylic Acid and its Uses,' in September Number, p. 113, may in the meantime be perused with advantage.—Ed. *B. B. J.*

JUDGING AT THE RECENT ALEXANDRA PALACE SHOW.

Permit me to make a few remarks respecting your comments on the awards in Classes 24, 29, and 35, at the recent Alexandra Palace Show. The first prize in Class 24 will, of course, be a 'certificated best,' as was the case with your hive in Class 2. The medal will not be given, and even if it had been erroneously awarded by the Judges, it is not at all likely that Mr. Cheshire, as a member of the executive, who is well acquainted with the rules, would have accepted it. With respect to Class 29, the award was to be made 'for the best honey extractor,' and the addendum, 'portability and cost to be taken into consideration,' was, I presume, never intended as the sole guide for the Judges. If such had been the case, the wording should have been simply, 'for the cheapest and most portable honey extractor;' and then the prize would undoubtedly have gone to Captain Danyell's Smielatore, as that was even more portable than the 'Little Wonder,' and but little beyond a third of the price. You are evidently labouring under a misapprehension as to the improvements made in 'The Rapid.' I have carefully made note of all its main features, and the only point in which it can truly be said to be like the machine that won the prize in 1875 is the principle of reversing the cages. In Class 35, 'For the best method of producing wax foundations,' there can be no reasonable doubt that the medal was well deserved, for the difference between the old-fashioned plates and moulds taken from natural comb (or its equivalent) will readily be appreciated. Instead of the medal for the second award, Mr. Neighbour will probably readily accept a certificate, unless he can show that his exhibit is an improvement on last year. The committee would, in future, do well to save the Judges from running any risk of making awards to second-year exhibits. This could easily be done by having a clause on the entry form, certifying that the article entered had not taken a prize previously, and that it contained some feature or features that had not been incorporated in previous exhibits in the same class. It is scarcely to be expected that men who do not know what they are to judge until they are actually set to work can remember from year to year every feature of each article that takes a prize.—C. T.

ANALYSIS REQUIRED.

As in spring, a hive without young bees, though possessing eggs, larvæ, and brood recently sealed, does not, when deprived of its queen, rear a successor; and as, in autumn, a stock which has been queenless for a few weeks after all the brood is hatched does not construct royal cells when supplied with comb containing only eggs and larvæ, I have almost come to the conclusion that bees a month old lose the power of elaborating royal food. Can any one furnish an analysis of the food respectively put into royal and common cells during the fourth and fifth days of larval life?—Questioner.

SEASON IN WEST ABERDEENSHIRE.

The honey season in this part of the country is now finished, and bees have again entered on their long winter rest, but with much greater satisfaction, and less solicitude, for the coming dreary months than in the autumn of 1875, being in most cases better provisioned.

The season, from beginning to end, has been characteristically marked by extremes. At one time being so excessively warm as to make bee-labour even a burden, and at other times so exceedingly cold that no bee could venture out under the penalty of immediate starvation. More especially did these sudden changes occur in the early part of the season, greatly hindering breeding and reducing stocks to the lowest ebb, so that the 24th of June, instead of finding them ready to swarm, found them at starvation point. At this date, however, the weather altered from cold and wet to warm and sunshine, bringing into blossom thousands of clover, which acted like a charm on the disconsolate honey-maker. In fact, such was the sudden change from poverty to plenty that weak stocks seemed to be seized with the mania for swarming, in many instances swarming out altogether, leaving brood in all stages of progress. Most of these run-aways being fed stocks, contained little sealed food, which I believe to be the prime reason for desertion.

Swarming in general was about three weeks later than usual. Our first came off on the 12th of July.

The excessive heat which then prevailed told heavily on many an apiary, inducing swarms to fly away in great numbers.

Never in any preceding year do I remember hearing of so many swarms having flown away. It is stated that a neighbouring gentleman's residence attracted some twenty swarms, most of which, having penetrated the roof between the slates, were, of course, lost to their owners.

The whole of July being particularly fine, swarms rose rapidly in weight, and stocks which were supered did wonders. The first two weeks of August, which is our principal storing season, were particularly fine, and bees availed themselves of the heather-blossom to the utmost advantage. About the 20th, however, the weather suddenly changed, and ever since then bees have done nothing. Although the heather remained long in blossom the cold and wet prevented them taking advantage of it. On the whole, the yield of honey is about an average, notwithstanding the backwardness of the spring season, which has always an effect on the honey harvest.

Now that the bee-master's anxiety regarding the present year's harvest is over, his energies will be directed toward hive-making, in view of another season. Since experience has shown us that bees will store as much honey in a hive of one make as in that of another, the great points to be attained are facility for manipulation, durability, and cheapness. As most bee-keepers have their favourite hives, a circumstance which may be the result either of greater success in that particular hive, or may arise from any private interest in the manufacture of the same, we have in our own apiary the Woodbury hive, the broad-shouldered frame hive, and the Lanarkshire frame hive, the latter of which we consider the most complete, accommodating, and satisfactory.

The advantages of this hive have already been fully described in the pages of this *Journal*, and the many gentlemen who have testified to its value suffice to prove its worth; so that further comment on our part would be superfluous. Suffice it to say, that we find it to possess most advantages claimed by other hives—the false bar underneath the bar proper is quite a masterpiece in profitable bee-keeping. By having the bars in all the honey-boxes or supers the same as the false bar in the frames, interchange of comb can be made at any time, which is often of great importance.

Having ourselves thoroughly tested the merits of the hive, we can honestly recommend it to anyone wishing a good substantial, well-made, and accommodating hive. The maker, whose address I shall be happy to communicate, is the 'Lanarkshire Bee-keeper,' whose pen has contributed so many able articles to this *Journal*.—A. J. Anderson, *Clatt, Aberdeenshire.*

BEE-KEEPING IN YORKSHIRE.

The season so far has been an excellent one. The sunny, dry, calm weather has tended greatly to enhance the production of honey from the heather blossom, which is just now at its height. The frosty nights have been rather a drawback.

The Ligurian queens we had from you last back end of the year have held their own against the blacks, having proved themselves better breeders and honey-gatherers; but they seemed to have a disinclination to swarm, so we made them.

The system of modern apiculture is slowly advancing, but surely, in this neighbourhood, in the way of bar-frame hives, transferring, &c., which is in a great degree is due to your invaluable Leaflets, and which I have distributed amongst the old sulphur-pit section.

A good many beekeepers from a distance bring their bees to the Moors through the town; so a few of us are offering some prizes for the best supers of heather honey which has been gathered this last month, to be shown the first market-day after their return from the Moors, open to all comers. Your correspondent, 'Yorkshire Moors,' took a Stewarton box and super off one stock of Ligurians weighing, with the boxes, 4 stone of beautiful white clover honey, and they are doing well at the Moors.

I make my bar-frame hives out of old pale-brandy boxes; and good ones they make.—Wm. Atkinson, *Helmsley.*

VARIATIONS IN THE HARVEST.

I have read with much pleasure, and I must say some little envy, not only your account of the Bee Show, but also the various accounts of the honey harvest which appear to be very good. My envious feelings are aroused—1st, because I was not able to come to the Bee Show and see some of those fine exhibitions of honey, &c. 2nd, because I do not happen to be so favoured as many other bee-keepers are with such a good honey harvest. I had fifteen hives of bees on Sept. 23; six were old stocks, five were first swarms, four were second swarms or casts, the latest of which came out about the 26th June; three were in Woodbury ten-bar frame-hives made from directions in the *Bee Journal*, one in an eight-bar frame-hive, glass sides three thicknesses, two dead air spaces; seven in Neighbour's Improved Cottage hive; three in common straw skeps; one in a Neighbour's Improved Cottage, which I had turned into a bar-frame. I expected to have a good surplus of honey, and made some Woodbury ten-bar frame-hives intending to transfer two or three into one.

On Sept. 24 I commenced transferring from two of Neighbour's Improved Cottage hives. The first I operated on had a very fair quantity of bees, but very little honey; the second had a little more honey (not more than 4 lbs.), but very few bees, not half a pint; in fact, so few that I did not attempt to drum them, but used the bee-quieter to get them out of my way whilst I cut the comb out: amongst them were several drones which I killed.

On Oct. 1st I transferred three hives into one bar-frame, plenty of bees in each of the hives (the three in the common straw skeps), but very little honey, not nearly enough for any one of them to stand the winter: they are all right at present in their new quarters. I have been feeding them and must continue to do so to preserve them. My bar frame-

hives seem to have a very fair quantity of honey, but not more than they will require.

During September some friends who live at Hollingbourne, five miles from here, and who destroy bees, told me that if I liked I might have their bees for the taking, leaving them the honey (I had previously been advocating the bar-frame hive). At this time I had no bar-frame hive ready, so I made arrangements for Oct. 8, and took my hive (that I had to make), and just turned one skep up when it came on to rain; and as I had to do all the work out of doors I objected to get wet through with the prospect of having to walk five miles in wet clothes, so I gave up for that day and obtained a promise from them that they would leave me three hives (they would not wait any longer, but destroyed four). So I went over October 15, and successfully transferred the three left. These three hives, miserable skeps, had nothing in them but bees and honey, I mean by this that there was no bee-bread or brood, in fact there was not a piece of empty comb that I could utilize. My friends supplied me with an old hive of comb which the bees (for some cause I could not ascertain) had vacated, there was certainly not any foul brood in it, but a small quantity of honey and bee-bread. I have left the transfer at Hollingbourne until next week to allow them time to repair damages. Do you think I should have removed them directly? In transferring I carried out your directions given on the leaflet 'Transferring.'

The transferring-board I found very useful; I cannot get the old school that I am acquainted with to give up destroying bees, they cling to it tenaciously. I was told after I had transferred the three hives that it did not take near so long to destroy them as to transfer. I felt tempted to use very strong language against such a silly argument. I am afraid the district in which I live is not very favourable for honey-gathering. I am surrounded by hops, and I think the bees, having farther to travel for supplies, cannot obtain so much as those in more favoured localities. Pray excuse the length of this letter, but having read such opposite accounts to what I have experienced I thought you might be able to suggest a reason for such short supplies.—Joseph Torry, *Lower Fant Road, Maidstone, Oct.* 17.

[Note.—It appears to us that you have already shown very excellent reasons for the scantiness of the honey yield, viz., the presence of the hop-gardens, which as a rule are highly cultivated and contain no wild flowers or flowering shrubs. You did wisely to leave the transferred stock, for removal after the bees had fastened in the combs.—Ed.]

FRANCE.

Already French bee-keepers generally are being exhorted to prepare beforehand for the great International Exhibition to be held in Paris next year, at which it is anticipated the foreign fraternity is likely to take a prominent part. Bees, silk-worms, &c., will constitute Section No. 83. Rooms will be set apart within the buildings for bee-keepers wishing to assemble, and the Société has decided to appoint a Committee to look after the exhibits generally and to watch over the interests of those exhibitors unable to attend personally. It is also thought probable that a special agent will be appointed to represent the Société at the Champ de Mars during the whole time of the Exhibition.

Echoes from the Hives.

Marykirk, viâ Montrose, September 27, 1876.—'My hearty thanks for the speedy receipt of Volume III. of the *Bee Journal*. My hunger for information on the subject is now more than satisfied,—for the present, at least. I will, however, refrain, for I could not speak as I would in the praise of the varied and valuable amount of information it contains. Suffice to say it is to me a feast of fat things which will continue. Although I am considered in our neighbourhood fully as far advanced as any in the management of bees, by what I have read in your *Journal* I am feeling quite at sea and just beginning to realise my terrible ignorance of the whole system. Still I must muster courage and face the difficulties before me. I have a real interest in bee-culture and will carefully consider the valuable matter now before me, and not only so but prepare to act upon it. I never heard of your *Journal* till at the Honey Show in Dundee, and so worked upon the old system, and before I even saw an article in print in any book or newspaper pertaining to bees, I commenced to swarm my stocks artificially, now about ten years ago. All my hives are straw ones. About three years I adopted the flat tops for wooden super-boxes, and only for two years have I preserved all my bees alive after the honey harvest, so that by hearsay and experiments I have been advancing a little. From two of my stock hives this season I have sold fully 3*l.* from each of honey, and not taking into account second and third swarms, to which I generally add a top swarm of bees in autumn, giving the young queen. Under this the old system, being ignorant of recent improvements, you will allow this is not so bad. Now I must adopt a bar-framed hive, I never saw one till lately, and as yet have not one in possession.'—C. G.

Ellesmere, 10th Oct. 1876.—'My stocks are doing well, and all but one are in good condition for wintering—this one was a small swarm hived on 27th June, and a fortnight ago weighed about 50 lbs. I found all the combs were nearly full of honey, so I slung two of them and also gave the bees two more frames of empty comb, and began gentle feeding. Now the stock is breeding nicely, and I hope will soon be in fit state for its winter quarters. The other day I heard of a sad piece of cruelty to bees. A man residing about three miles from here lost all his bees last winter, and this summer purchased a swarm from a neighbour of mine. This swarm I put into one of "Neighbour's Cottage Skeps," and he took it away to his home. Last week he drove the bees out of this hive, took away *all* their combs and stores, then put the bees back into the empty hive again, and commenced feeding them. He says they have made a nice bit of comb already. Did you ever hear of such cruelty? The Smotheration Plan is kindness itself compared with this. The person who has acted thus is an educated man and holds a good position in the neighbourhood, but I think he must possess a most pitiless nature. I shall certainly take him to task about it the first opportunity I have. I have dissuaded several cottagers near me from destroying their stocks, and have made several converts to the improved and merciful method of bee-keeping, and I hope in another year, when I shall have become better acquainted with my neighbours, to add many more names to my list of *Real Bee-keepers*. Certainly there is plenty of work for all who have at heart the interests of Bee-keeping. If you publish any part of this please allow me to sign myself—Salopian.'

The Lee, near Hebden Bridge, Yorkshire, Oct. 13*th*, 1876.—'I have been much surprised on reading the *Bee Journal* with the splendid supers of honey that have been collected in various parts of the country, and in this neighbourhood we have got next to nothing. Swarming was very late

and the rains set in just when the heather was getting into full bloom, and the bees begun to throw out their young, and I am afraid the stocks will only be weak in the spring; we have nothing but the old skep except two bar-frame hives that I got in the spring, neither have we any Ligurian bees. Will you please say whether it is too late in the season to get a Ligurian queen; and if not, how to unite safely with one of my stocks in the bar-frame hive; and whether if a queen is got now and safely united she will breed pure Ligurians in the spring? or would you advise getting a stock of pure Ligurians, as I intend to make an effort to master the new system, though I don't think our neighbourhood is one of the best for bees?'—JOHN HARTLEY.

The Little Wonder.—Mr. G. Lydford, of Shaftesbury, Dorset, writes:—'I am fully convinced that it is one of the best articles brought out for the use of the bee-keeper.' Mr. A. G. Radcliffe, Fonthill, Gifford, Wilts, says:—'Many thanks for the Extractor, which arrived quite safely. I am delighted with it. I am only too glad to get such an excellent machine so cheap.'—C. T.

Beaurepaire Park, Basingstoke, Hants.—'I have taken this season 708 lbs. 8 oz. of honey.'—H. WELCH-THORNTON.

Dorsetshire.—'A County Association for Dorset is in course of formation, Mr. C. E. Norton, of Shaftesbury, having consented to act as honorary secretary.'

One begins to understand that bees, where properly 'farmed,' may yield a considerable profit when one hive alone, as shown by an exhibitor at the Alexandra Palace, can yield 111 lb. 12 oz. of honey and comb, the value of which is nearly 8*l.* market price.—*Buckinghamshire Advertiser, Sept. 23rd.*

Queries and Replies.

QUERY No. 177.—With many thanks for your replies to my last, I am again tempted to lay a few queries before you, trusting that you will not deem me too troublesome, as they are penned for the general benefit. They have chiefly suggested themselves to me whilst looking over the previous volumes of our *Journal.*

1. *Single Specimen Bars of Honey.*—Do you think that specimen bars of honey in the comb would be admissible in the shows of the ensuing year? The same to be shown for purity, straightness in the bar-frame, uniformity of construction, with nett weight, the same to have been taken from a stock-hive belonging to exhibitor. Would not such samples as the above tend in some measure to show that the exhibitor's hives had been carefully treated and managed?

REPLY.—Undoubtedly.—ED.

2. *Propolizing Frames in Lanarkshire Hive.*—In the Lanarkshire hive, would not the bees be very likely to propolize the bottoms of the sides of the bar-frames together, as they, by touching each other, regulate the distance apart? If so, is there not the danger to many, if very securely fixed by it (as very often happens even with the Woodbury and Sherrington), of being unnecessarily moved or jerked, and more particularly while removing a bar from the middle of the hive?

REPLY.—There would undoubtedly be a small amount of propolization, but not sufficient to cause the mischief you apprehend. The frames are separated by Stewarton slides, and there is a thin dummy, removeable, to give lateral space, so that when the upper parts of the combs are liberated, the frames will part from each other without jarring, and almost without disturbing a bee.—ED.

3. *Bar Arrangement.*—Do you see any objection to the following plan for making and arranging bars and bar-frames in hives or supers? viz. to retain the regular distance of the bars from centre to centre, but to increase the width of the bars, thereby lessening the distance between them to the space required for worker-bees only to ascend into a super. For my own part I see no reason why it should not be a step in the right direction. *First:* Because it would do away with the adapting-board, except in cases where round glass supers are used. *Second:* Because it would give more available slots for the bees to ascend and descend, and likewise more easily than through the perforated zinc, besides lessening the chance of dead bees blocking up the entrance into the super. *Third:* Because the fear that the queen would ascend is thereby nullified. *Fourth:* Because it would be more likely to prevent the bees from building the comb upwards beyond the under part of the top-bar, or reduce its being done to a nullity. And I have no doubt other reasons favourable to its general adoption may be found. I did intend to have put this plan into operation when I drove my bees a month since, but elected to bide your opinion respecting it, so shall therefore anxiously await the November number.

REPLY.—The only objections to the principle are, that the wood being liable to expansion, the spaces between would vary at times; and that the frames being thicker than the combs, they would not be so convenient for use with the extractor.—ED.

4. *Replies to Queries.*—In pp. 111, 112, vol. i. Queries 67–69, I observe are separated by the reply to each, although the three questions are asked by one and the same correspondent. Now, being much struck with this arrangement, I cannot refrain from saying that I think it would be a great advantage to your readers if every query and its reply were thus given together. It would enable a distinct reference to be made in the index, and thereby enable any particular one to be referred to at once, without at times the necessity of having to read perhaps twenty or more lines before the required query be found. I also like the heading arrangements in Query No. 131, p. 81, vol. iii., as it at once conveys to the mind of the reader the subject about which the question is asked.

REPLY.—We should only be too glad if our subscribers would separate their questions, and indeed it would be a boon to us if they would keep copies of them, so that we need not repeat them in our replies.—ED.

5. *Badly Managed Hives.*—Kindly inform me of the best plan to adopt to rectify bar-frame hives that have unfortunately been allowed to remain unexamined for years (two, three, or more), and in which the combs have become worked together here and there in some places, and thoroughly joined in others, so much so, that three or four bars can be moved by lifting one (*i.e.* after they have been eased at the ends from the propolization), and what had better be done; first, to put some in thorough working order; and, secondly, to only carry them through the winter and spring, as when the proper time has elapsed after swarming it is intended to put the bees into new hives?—JOHN H. HOWARD, 11 *Queen Street, Exeter.*

REPLY.—The combs being attached 'here and there,' is not detrimental to the stock, and if there is nothing otherwise amiss, we should hesitate before interfering with them. Bees throw out stanchions occasionally, without apparent reason, and if they be cut away the bees will restore them almost immediately. If the stock can be relied on to yield a swarm next spring, we should be inclined to super it afterwards and let well alone.—ED.

QUERY No. 178.—*Standard Frames.*—Is there any chance of these becoming facts, or will they only still continue to be talked about? I am thinking of selling off my hives, and making some with the latest improvements; but if I could hit upon a size likely to become standard, I should be better pleased. My frames are 10 in. deep, 16½ long at top, and 15½ at bottom. Do you think they are too large? I find that they often break in the slinging process.

Is there any real *practical* disadvantage in having smaller frames, say 12in. at top, and having twelve frames instead of nine. I know it is *said* the disadvantage is great, but would not the advantage of the smaller combs more than balance it? For winter they might be reduced to 10, or even 8, by division-board, or vulcanite.

Please send me one of your *latest* hives; and if you can give me any hints as to the making of them, I should be thankful. I make all my own hives, so a change now and then is no great loss to me.

Lectures.—This is a heathenish place, and some of us have been trying to get the Rector to give a lecture on bee-keeping to the 'bee-killers.' I suppose you do not do anything in this line? If so, we should be pleased to pay you a fee for a lecture during the winter, as you would be so much more practical than our worthy parson, who is not a bee-keeper.

Supers (Sectional).—Don't you find these awkward to sling? I fancy if a knife were made smaller than your honey-knife, it would perhaps render the sectionals more handy and more popular. They are certainly the best, and deserve it.—A. W.

Reply to Query No. 178.—Replying to your queries, 1. We fear there is little likelihood of a general agreement of bee-keepers as regards a standard hive or frame, but as our hive has stood the judgment of the Judges at the Crystal Palace, 1875; the Alexandra Palace, 1876; Glasgow, 1875 and 1876, and ever so many other leading shows, we feel fully justified in calling it the 'Standard,' which will henceforth be its name, but full particulars shall shortly appear. 2. Your size of frame is as nearly as possible that we advocate for general purposes, and we do not find it too large. We do not see the practical advantage of small frames, except for use in supers or in nuclei, or where the state of the country will not warrant larger hives. Having this idea in view, we intend to set up a second standard to contain frames of the size used in the Cottager's Hive, which is only slightly deeper, and otherwise of same dimensions as the old Woodbury. The method of making shall be fully described. 4. We cannot undertake lecturing; it is not our forte. 5. No; for we never want to sling the honey from sections; they are for obtaining the honey in the comb in the most saleable form. For extracting, we should use frames only.—Ed.

Query No. 179.—Returning home on the 16th inst., I set to work to get my bees right for winter. I have much to regret that I had not a longer time with you, in order to pick up information in manipulation. I am unfortunately obliged to trouble you by letter again, but you have formerly been so kind in answering my queries that I have little doubt you will serve me again. To save unnecessary trouble to you, I have left blank spaces in which you can make your remarks.—E. H. H., *Shrewsbury.*

1. *Removing Combs in Skeps.*—On 27th June I received numerous frames filled with empty comb, which I fitted into your hive No. 2, and under your instructions, placed upon it a skep containing a swarm which came off on 10th June. These have done remarkably well, and I proceeded yesterday to take away the skep, the lower hive being well filled with comb in frames. I removed the honey and combs in the skep. I waited for a favourable day, and the weather being bright, I thought I should have succeeded, but to some extent I failed. Just as I began the sky became overcast and the weather turned suddenly cold, and the bees were exceedingly difficult to get off the combs. I beat the hive gently for a long time, and after getting about three parts of the bees to move upwards I found the combs were falling in some places, and these I was compelled to lift out, but in doing so many bees were drowned in the honey from the bleeding comb. They became at last so difficult to remove that I had to lift out the combs one by one, and in so doing of course I lost many bees. Could I have done any better under the circumstances? I mean, to get the bees out, and in what way?

Reply.—Our leaflet on 'Driving' would have given the correct method of getting rid of the bees, and that on 'Transferring' the best method of removing the combs. After the bulk of the bees were out, if you had cut the skep in twain and removed the combs, the bees could have been brushed off with a feather almost without loss.—Ed.

2. After removing the skep I put on a quilt formed as follows: first, a piece of fine canvas, then four layers of warm flannel, and on top a piece of Brussels carpet. These I fastened together at the corner with a paper-fastener, and the whole forms, in my opinion, a first-rate quilt, of about half an inch in thickness. It is porous for ventilation, and must be very warm. Will this be the correct thing, think you?

Reply.—We think nothing could be better, unless smooth linen or cotton sheeting had been used instead of the rough and holey canvas.—Ed.

3. *The New Feeder.*—I put on the new feeding-bottle which I had from you, which answers admirably, but I found my syrup too thin, for out of one hole only it ran down into the hive. I must boil it up with more sugar, and then I think I shall have to report the feeder perfection.

Reply.—The fault, if any, must have been in the insecure corking of the bottle. If filled and placed level, pure water will not escape from it, even though all the holes be exposed; and only when nearly empty will variation of temperature influence it. A change from cold to heat would then cause expansion of the air in the bottle, and a slight leakage of the syrup, but at such a time the bees would be on the alert, and would soon lick it up. We think such leakage would be an advantage.—Ed.

4. *The Extractor.*—I have tried the Extractor, but so far I cannot say much about it, in fact I want a little more instruction thereon. I presume it will not answer so well for combs out of skeps as for combs in frames?

Reply.—For combs not in frames a double frame of wirework should be used, in which they can be laid, unsealed, turned over, and put into the Extractor without being handled a second time.—Ed.

5. *Unsealing Honey Combs.*—Please tell me how I should unseal the comb before putting it in the Extractor? I did mine yesterday with a sharp knife, but I found, the combs being soft, the edges were much jagged and much of the comb dropped into the can with the honey. Then again in turning the comb and cutting the other side it was difficult to get it into the Extractor without breaking. Kindly tell me how I shall proceed to the successful treatment of the remaining comb which is nearly all sealed and with little or no remaining brood.

Reply.—The knife should be kept hot, especially during cold weather, and the cells cut off with a slicing motion.—Ed.

6. What is the best method of running honey without an Extractor so as to save the comb?

Reply.—There is only one way, viz., unseal it and lay it on a wire strainer so that gravity may act upon the honey, and if the latter be thin, most of it will leave the cells, but if it be thick it will not move. Draining honey, as it is called, is generally a very unsatisfactory proceeding.—Ed.

7. *Removing Top Storeys.*—I had a hive No. 9 from you in July upon which I placed a strong swarm in a skep. This hive was only provided with guides to the frames and not comb. Would it be wise to take away the skep? I rather fancy the weather being unpropitious for driving, if I attempt this I may fail entirely. Besides the lower hive not being well filled with comb and brood would no doubt suffer. What is your opinion?

Reply.—Unless the lower hive has sufficient comb for the bees to winter in, and the skep be free from brood, we would leave them as they are, or would let them winter in the skep alone, if it has sufficient space for them to cluster in. If solid with honey, remove it and fill up the frame hive with its combs after extracting the honey from them.—Ed.

8. In transferring comb and brood from a skep, what is the longest time it would be safe to keep out the brood-comb before transferring to the frames? It would take me a considerable time I know, being a novice, to transfer one frame full. Perhaps in the meantime the brood would chill and I should lose the lot in the doing.

Reply.—In cold weather a few minutes would destroy the life of the brood, therefore, having cleared the hive of the bees, take it into a warm room or greenhouse and operate there. If there be much brood some will hatch out during the transfer, but such bees will not leave the combs.—Ed.

Query No. 180.—1. How small an entrance do you recommend from now till February or March next?

Reply.—One through which two bees can pass will be sufficient, but it will require attention to prevent it becoming choked with dead bees.—Ed.

2. Can too small an entrance tend to cause dampness?

Reply.—Not if the hive be properly covered with a quilt, with ventilation above it and the bees can get in and out.—Ed.

3. Ventilation in the roof of my hives is given by a 1½ inch hole in front gable, covered with perforated zinc, do you consider that sufficient?

Reply.—No; there should be an opening at the back also, to permit the passage of air *through* the super-space.—Ed.

Query No. 181.—*Queen Introduction.*—Can you tell me anything that will make bees take to a new queen? Two stocks I know have killed the queen, when let out of her cage, by stinging her. In one case I saw the bee do it as the queen was in my hand, just taken out of the mass of bees that surrounded her in a ball.—G. W. R., *Marlow.*

Reply to Query No. 181.—We know of no specific for the safe introduction of alien queens at this season: but at the same time we have every faith in their receiving a welcome after a short caging in hives in which breeding is going on. There is something peculiar in the treatment by the bees of queens in broodless hives, which is not understood. The Renfrewshire and Raynor cages, in which the queens imprisoned rely for sustenance on the kindliness of the subjects on whom it is sought to impose them, have opened our eyes considerably in this respect. We have (almost) invariably found that when there is no brood in a hive the difficulty of introducing a queen is greatly enhanced; and although it would seem that, when without brood, the queen ought to be received by the bees as the sheet-anchor of the colony, we have found that, in nine cases out of ten, the queens have suffered encasement, and in many instances they have lost their life through the injuries thus inflicted. Whether the exciting cause of encasement is love or hate, we will not pretend to explain; but if it be possible to bring about a condition of things which will render the fatal embracement improbable, a high hill-top will have been gained. We hazard the opinion that only the presence of *brood in all stages* is a preventive of encasement, and that it will be wise in all cases to ensure that state of affairs by gentle stimulative feeding before attempting to introduce alien queens. Our allusions deal only with the thin end of the subject; but an esteemed correspondent 'Questioner'—one of the highest authorities in Great Britain—goes further, and advances an opinion that greatly supports us (see his letter, p. 129), and opens a wide field for observation never before discussed except in the columns of this *Journal.*

The fact observed, of the queen receiving a death-wound from a bee, is quite in accordance with our experience, although such a statement will slightly jar the faith of the Revs. Dr. Cumming and J. G. Wood—the first not believing that bees can ever be regicides, and the second that they have too much respect for royalty to make use of the sting. One observation, however, is worth a load of drawing-room theory; and the fact that bees will sting a queen, even after encasement, points rather to a conclusion that regicide is the object, but that the eagerness of the assailants, and their crowding about the poor queen, render the bees incapable of using their stings, and consequently postpones the tragedy.—Ed.

Query No. 182.—Please let me know in next month's number of *Bee Journal* whether Laurustinus, when in flower, is injurious to bees. I have been told that bees never do well when there is much of it near.—W. E., *Dublin.*

Reply to Query No. 182.—Laurustinus is one of the best winter flowering shrubs known for bees; it yields both honey and pollen when scarcely anything else is in blossom, and in *this* neighbourhood is highly esteemed by bee-keepers.—Ed.

NOTICES TO CORRESPONDENTS & INQUIRERS.

Cockforten.—It is too late to put driven-out bees into empty hives, with any prospect of their doing well. If you can rig up a set of frames of comb in a bar-frame hive, and give the bees only the duty of storing syrup and attending to brood, they may do; but comb-building, unless the bees are very strong in number, will overtax them, and they will die off too rapidly to be of any service.

Crown Boards.—By using the crown-board you nullify the principle of our hives, and we cannot listen to any complaints thereupon. We have over and over again shown that they are the chief cause of dysentery through encouraging dampness, and having ignored them, cannot be responsible for any evils produced by their use even if they do occur in *our* hives. The quilt is the only safe covering for hives, with plenty of ventilation between *it* and the roof.

Do Bees sleep?—Most assuredly they do; we have often seen them in their cells perfectly motionless, lying as one would say on their right shoulders with their heads against the bottom of the cells, and their tails slightly protruding. We never saw them thus quiet until after the introduction of the quilt as a covering to hives, and the dummy or moveable side which permits of the lateral movement and removal of the frames almost without the bees being aware of it. We have many times showed the sleepers to visitors, and doubtless many will confirm our assertion.

We wish to state finally, that letters of inquiry as to queens, hives, extractors, and the like, do not entitle the writers to *immediate replies* 'by return of post' to the queries on bee management which (often) accompany them. Every post brings some of them from a class of people who probably think themselves 'smart' through having obtained the information desired cheaply, for we have always replied to, but have seldom heard *from* them again, except under similar circumstances. This class are of those *who ought not to keep bees at all,* for the meanness that prompts them to seek information by such 'indirect, crook'd ways,' is sufficiently indicative of their disposition, to make it certain that they cannot succeed in a business where only 'the *liberal* hand is made fat.' Such letters must in future be accompanied by twelve penny stamps and a stamped directed envelope, or they will not be replied to except through the columns of the *Journal.*

THE

British Bee Journal,

AND BEE-KEEPER'S ADVISER.

[No. 44. Vol. IV.] DECEMBER, 1876. [Published Monthly.]

Editorial, Notices, &c.

THE SCHOOL OF APICULTURE, FAIRLAWN, SOUTHALL, W.

NOTICE OF REMOVAL.

To our Readers,—

We have the greatest pleasure in being able to report that we have removed our establishment to the above address.

In the advertisement columns of our previous issue we notified that our Juniors would continue our Hive and Bee business at Southall *after* the 1st of January next, where would be opened a School of Apiculture; but unexpected facilities have favoured us *all*, and we are located at Southall a full month earlier than we had anticipated.

Southall, let us say, is *one remove* (and *such* a 'remove' for us) from Hanwell, one and a half miles farther westward, being about nine and a half miles from London by both road and rail.

Fairlawn is situate on the (Uxbridge) road, about six minutes' walk from the (Great Western) rail, and the entrance to it is nearly opposite the end of the road from the railway station northward. It comprises nearly four acres of paddock, orchard, lawn, garden, and premises; and being almost surrounded by open pasture-land, orchards, and gardens, we hope it will serve as a means to illustrate every phase of bee-keeping.

It is proposed to build a light, moveable tent, with gauze front, in which nervous visitors may view any and every kind of manipulation in *perfect* safety, yet be so close to the operators that every word of explanation shall be audible to those whose hearing is not defective.

Should two or three visitors wish to become fully acquainted with a particular branch of the science of bee-culture, or to acquire a general knowledge of the whole, requiring time, the house is sufficiently commodious to receive them; and the lawn, measuring nearly 60 yards by 40, will afford 'croquet' pleasure intermitting.

The factory will enable our Juniors (with a little paternal supervision) to supply any quantity of everything necessary in bee-culture; and it will be their pleasure to exhibit at all times their method of manufacture, whether to purchasers or imitators, the object being, as so often set forth, 'the improvement of bee-culture.'

It can scarcely be supposed that during the winter months any highly-educative operations can be essayed; and until the spring induces the taking of *artificial pollen* by the bees, and there is some prospect of fine weather, Fairlawn will have few visitors, save for the purpose of instruction in hive-building; but as the season advances we have every confidence that its 'school' will be well patronized.

We have dwelt rather lengthily upon the 'moving scene' which we have experienced (from a repetition of which may we be preserved), and we respectfully hope that its difficulties will plead for us in extenuation of the numerous shortcomings in our professional duties, of which we are painfully cognizant.

We thank you most heartily and affectionately for the many favours received, and, in full assurance of your continued confidence, wish you all 'A Merry Christmas and a Happy New Year.'—Ed. *B. B. J.*

DECEMBER.

At this, the dullest part of the apicultural year, the chief object in view ought to be the preparation of hives and apparatus for next season. But, of course, there will be some who have not yet their bees in fit condition for wintering, and such idlers must not expect to be able at this late period, with winter weather approaching, to escape the penalties due to procrastination. All feeding should now be over, but where yet necessary barley-sugar only should be given. Many dilatory bee-keepers have not yet packed their bees for the winter, with the outer protection necessary in certain instances; and in such the rain or snow will ere this have laid the foundation of dampness, mouldiness, and dysentery.

Dysentery is almost exclusively a winter dis-

ease, brought on either by the bees eating unwholesome food or by the coldness of the hive (often caused by careless over-ventilation), rendering the consumption of a large quantity of food necessary to keep up the heat in the winter's nest requisite to life. This is an oft-told tale, but it is too often necessary to remind bee-keepers of probabilities in advance, to render its repetition out of place. Prevention of dysentery is easy, dryness of the hives' interior being the chief condition (this is brought about by gentle ventilation, *i. e.* ventilation without perceptible draught), and is so far *better than cure* in this respect that we would advise every bee-keeper to use every possible means to *prevent* it, for very often its cure is impossible. The general remedy for the troublesome malady is fresh, wholesome syrup or barley-sugar, but the difficulty in cold weather is to get the bees to take them. A thorough warming and drying of the affected hives is useful in dispelling the active principle of the disease; but as this must be done with the bees in confinement, it is not always easy of accomplishment.

Any arrangement, by which the bees may take a short flight, in a large bell-glass, or net, while in a heated room, will be beneficial, as only during flight can the poor distended bees relieve themselves, and it may be taken for granted that those which have appeared to do so within the hive having actually burst. Few of the dysenteric bees ever recover so as to be useful; they are usually so weakened by the disease that they die off before the brood which they, as it were, instinctively produce to replace themselves, comes to maturity.*

THE RAYNOR HIVE.

This hive, as exhibited at the Alexandra Palace, aims at comprising most of the modern improvements in bar-frame hives. The hive is of wood, with crown-board of straw, and contains ten frames, with two side-dummies, or dividers, by means of which it may be used as a collateral hive, moveable pieces of wood being inserted in the upper sides of the dividers, which, on removal, admit worker-bees only. The crown-board, being of straw, and fitting close on the frames, which are flush with the top of the hive, admits of perfect ventilation during the winter months; house-flannel or carpet of loose texture being placed between it and the frames. In the crown-board are three zinc slides, the two outer ones admitting to the supers by means of narrow slits, and the central one rendering a central hole available for the feeding-bottle, or queen insertion. The frames, together with the insides of the front and back of the hive, are tapered, for facility of extraction or insertion without crushing the bees. The frames rest upon the front and back, which is bevelled off to one-eighth of an inch, effectually preventing propolising, each frame forming its own distance-guide. The hive, fitting loosely within its case, can be removed at pleasure, with its floor-board, or operations may be performed without removal. Sufficient space is allowed between hive and cover for a tier of four of Lee's sectional supers, each four inches in depth, worked on the storifying system. The hive admits of any kind of super being used. The capacity of the hive is 2615 cubic inches, thus containing more than a bushel measure. It has been in use in the apiary of the inventor for some years, and is considered by him an entire success, yielding large quantities of the purest honey-comb on both the collateral and storifying methods, the specimens exhibited at the Alexandra Palace being universally allowed by all judges to have been the finest in quality ever exhibited.

[We here take the opportunity of correcting an error in our report of the late Alexandra Palace Show, in our October number, where it is stated that the weight was not appended to this 'splendid set of supers' exhibited in Class 11 by the Rev. G. Raynor, and which obtained third prize, the ticket containing the weight, which was 67 lbs., being overlooked. A contemporary remarked:—

'The Rev. G. Raynor's supers, weighing 67 lbs., exceeded in purity of colour either of the above, (viz. Messrs. Cowan and Phillips); and had they been heavier would have deserved a better place than third.'

But when we state that the same stock of bees, in addition to working this set of supers, threw off a large swarm on the 13th of June—which swarm itself filled a facsimile hive, to the weight of 60 lbs., and also gave a super of 20 lbs.—it will be seen that

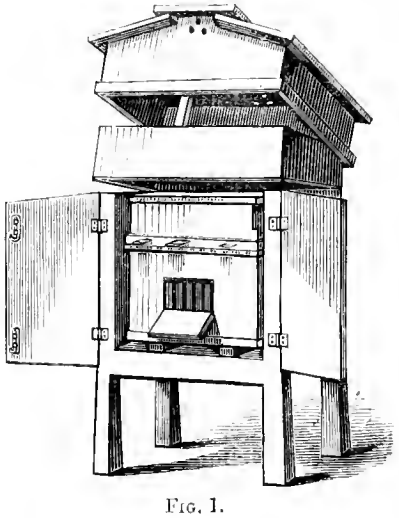


Fig. 1.

the actual produce of this single stock of bees was 147 lbs., and at the close of the season there were two very strong stocks, instead of one only, as there would have been had the swarm been returned.

We are assured also that this is only a specimen

* It is an extraordinary fact that stocks suffering from dysentery, except when very poor in numbers, almost invariably commence breeding more extensively than others, a freak probably due to the excessive consumption of food necessary for the maintenance of heat, and the unnatural activity consequently ensuing.

of the whole apiary, which, commencing at the spring with fourteen hives, has closed the season with thirty-six strong stocks, well provisioned for the winter, and has yielded a nett produce of 1423 lbs. of honeycomb and honey obtained by slinging.—Ed. *B. B. J.*]

Fig. 1 represents the hive with stand, case, hive, sectional super, and cover complete, showing the back of the hive, with folding-doors, and shutter to window, open, the sides of the case being double, with dead air space.

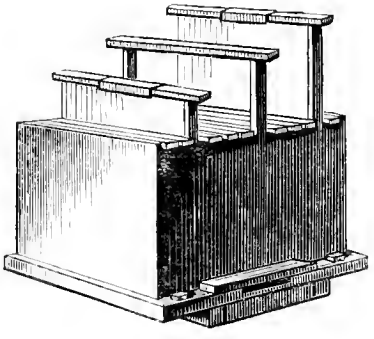


Fig. 2.

Fig. 2 shows the hive alone, open, with frame and dividers raised.

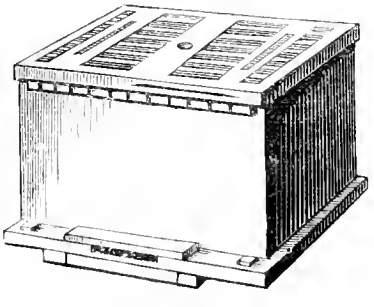


Fig. 3.

Fig. 3 represents the hive alone, closed, with crown-board of straw.

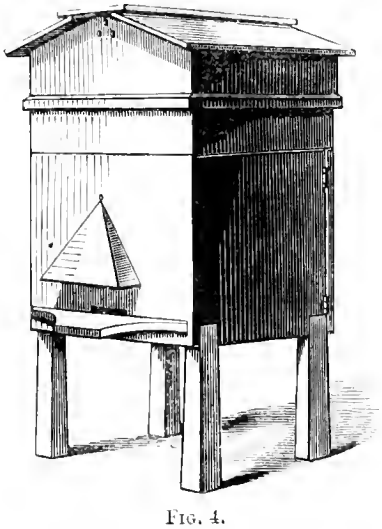


Fig. 4.

Fig. 4 is a front view of hive, cover, and roof, complete, showing the entrance, which, by a simple contrivance in the floor-board, can be enlarged, contracted, or closed at pleasure.

This excellent hive is manufactured by Mr. Lee, of Windlesham, near Bagshot, Surrey, in his well-known style of workmanship, and at the following reasonable prices:—Hive, 14*s.*; Floor-board, 2*s.* 6*d.*; Case and Cover, complete, 20*s.*; Sectional Super, containing seven sections, 3*s.* 6*d.* Total cost, 2*l.*

The dimensions of the hive are:—Outside measure, 17 inches square, and 10 inches deep. Frames: Top-bar, 15 inches; bottom-bar, 14¼ inches; depth, 9⅝ inches.

When used as a collateral hive, the number of frames is twelve, the eight central being reserved as breeding-space, and two on each side, separated by the dividers, as side compartments for pure honeycomb, the drones and queen being excluded by perforated zinc slides in the dividers.

In the back of the hive are three windows—a large one in the centre, and a smaller one at each side, by which progress in the side compartments may be noted. Capacity, 3000 cubic inches.

Price of the twelve-frame hive, with floor-board, sectional super, stand, and cover complete, is 2*l.* 10*s.*

Supers, with adapting-boards, can be used with or without the crown-board.—Maldon.

BRITISH BEE-KEEPERS' ASSOCIATION.

Mr. Fox Kenworthy, Hon. Sec., in a note dated 27th Nov. 1876, calls our attention to an error which crept into the *Journal* last month, viz. the fusion of the 'Tent Fund' and additional subscriptions to the 'Prize Fund' into one list, under the former heading.

The amounts promised to the 'Tent Fund,' it appears, were:—F. R. Jackson, Esq. 5*l.*; Hon. and Rev. Henry Bligh, 1*l.* 1*s.*; J. M. Hooker, Esq. 1*l.* 1*s.*; T. W. Cowan, Esq. 1*l.* 1*s.*; to which may now be added C. Tite, Esq. 10*s.* 6*d.* All the other names and amounts in this particular list (Mr. Tite included) belong properly to the Prize Fund.

QUEEN ELIZABETH'S METHEGLIN.

From Butler's Feminine Monarchie (1634).

'First gather a bushel of sweet-briar leaves and a bushel of thyme, half a bushel of rosemary, and a peck of bay-leaves. Seethe all these (being well washed) in a furnace of fair water: let them boil the space of half an hour or better; and then pour out all the water and herbs into a vat, and let it stand till it be but milk-warm; then strain the water from the herbs, and take to every six gallons of water one gallon of the finest honey, and put it into the boorne, and labour it together half an hour; then let it stand two days, stirring it well twice or thrice each day. Then take the liquor and boil it anew; and when it doth seethe, skim it as long as there remaineth any dross. When it is clear, put it into the vat as before, and there let it be cooled. You then must have in readiness a kive of new ale or beer, which, as soon as you have emptied, suddenly whelm it upside down, and set it up again, and presently put in the Metheglin, and let it stand three days a-working. And then turn it up in barrels, tying at every tap-hole (by a pack-thread) a little bag of beaten cloves and mace to the value of an ounce. It must stand half a-year before it be drunk.'

This, the author adds, 'Queen Elizabeth, of happy memory, did so well like, that she would every year have a vessel of it.'

THE BEES.

Book II.

ARGUMENT.

CONTRAST of Nature with Fashion—Reign of the former in Brynkynallt Vale—Address to Lady Dungannon—Her tasteful cottage compared with the incongruous ornaments too frequent in British pleasure-grounds—Garden flowers, most acceptable to Bees—Swarming, resting, and hiving of those insects—Gallic massacres, and emigrations—Apostrophe to English generosity, and French ingratitude—Fresh tenants occupy deserted combs—Fable of Aristæus—Swarms will not settle without a leader—Their grief at her loss, and joy at her reappearance—Seizure and escape of the King of Poland—Mr. Wildman's management of Bees founded on insect loyalty—Even long fixed colonies, their queen being dead, return to the parent state—or wait the emergence of a royal embryo—or joyfully receive a stranger sovereign—The vagrants from a crowded stall, having no chief to lead them, build combs on its outside—these to be destroyed, and the stall itself enlarged—Instinctive enmity, and combats of new-born queens—Double swarms unite under one leader, her rival being sacrificed by general consent—or slain in battle—Bosworth Field—After swarms usually feeble and ineffective—Adventurous voyage of Prince Madoc to America—The mother hive, weakened by successive swarming, falls a prey to more powerful neighbours, unless moved to a distant situation, or strengthened by union with another stock—Departure of the Braganza family from Lisbon to Brazil, under the protecting guidance of a British fleet.

DAUGHTERS of Fashion, who obsequious wait
Her changeful call, and swell her tinsell'd state,
Who bask and flutter in her noontide ray,
The light papilios of a summer's day,
Still cling enrapt, where pride and folly flaunt,
Nor press with foot profane coy Nature's haunt.
Far from your giddy round the goddess flies,
Veil'd in blue mists, where heath-clad FERWYNS rise,
Down the deep glen in white-foam'd currents led,
Where brawls rude CEIRIOG o'er her pebbly bed,
Or where she purls responsive to the gale,
Breathing soft whispers thro' BRYNKYNALLT'S vale.
For there, tho' native art in proud display,
Rear'd, emulous of Greece, the structures gay,
And Albion's FAIR, with tasteful genius warm,
Still lends the fabric many a kindred charm,
Yet owns that art an elder sister's reign,
SHE lifts the hill, SHE undulates the plain.
Form'd, as thou art, in fashion's sphere to please
With courtly grace, and unaffected ease,
Or here to bid fresh streams of bounty flow,
And in thy breast those streams reflected glow;
O! say, DUNGANNON, feels that breast a joy
Beyond the dear delight, when each lov'd boy
With filial transport clings, intent to lead
Thy willing footsteps to the fav'rite mead?

Swift, at thy call, behold obedient art,
Still "playing here but nature's second part,"
Trains o'er the trim-built cot thick-cluster'd vines,
Where Autumn red in fruit and foliage shines.
E'en Winter hoar can boast her leafy prime,
When up the roof green tufts of ivy climb,
Fix, as they shoot, the firm adhesive prop,
And curl fantastic round the chimney's top.
Within, Content, in homespun russet drest,
Clasps the fond infant to her flowing breast:
Or, as she turns her giddy wheel around,
Lulls him to slumber with the soothful sound.
Then lightly tripping thro' the grassy dale,
She fills, in carol gay, her foaming pail,
And smiles to mark each rose-lipp'd prattler draw
The milk's warm current thro' his tube of straw.
See, at the well-known voice, the matron rise,
Pure tears of pleasure sparkling in her eyes,
To kiss the hand which ev'ry want supplies.

While Fortune's minions still their thousands waste
In mimic pageantry, and call it taste,
O'er British plains while Grecian temples spread,
And proud Pagodas rear the alien head,
While ocean's conchs adorn an inland grot,
Or stands, in shape grotesque, the misnam'd cot,
Whence eddying smoke ne'er curl'd; true taste shall dwell
With genuine rapture on this modest cell,
Where use and beauty's mingling wreaths combine
To grace, Simplicity, thy rural shrine.

Thus, all unmov'd, with careless glance, we trace
The finest features of the fairest face,
Trick'd out by art, till nature from the soul
Speaks thro' the eye, and animates the whole.

And ye, with insulated pomp, that reign
The sullen masters of your dull domain,
Who gird your lawns with thick impervious zone,
Scorning to view one acre not your own;
Say, beams more brightly in yon fields above
Cold Saturn's ring, or belted orb of Jove,
In solitary state, than when they boast
Around each glowing disk th' attendant host
Of glittering moonlets? No! with proudest mien
Bursts on the eye the Genius of the scene,
When all unveil'd he shows his every charm,
The fane-crown'd village, and the cultur'd farm,
With shapely cots of different site and frame,
In every feature varying, yet the same.

O! here, ye LIGHT-WING'D RACE, with fenfold zeal
Quaff the clear nectar, brush the foodful meal!
Rang'd at your door, a present Goddess spreads,
With THRIFT or DAISY fring'd, the broider'd beds,
Hangs o'er your sun-beat hives a JASMINE shade,
And weaves with WOODBINE many a close arcade.

Sweet is the breath of Flora's balmy reign,
When, negligently gay, o'er hill and plain,
Flows with unstudied grace her mantle round,
Her tresses loosen'd, and her zone unbound;
Yet sweeter far, concenter'd, we behold
In the trim garden all her charms unfold.
Thus in one focus thro' th' aerial bow
Mix'd, yet distinct, light's parent colours glow.

The past'ral PRIMROSE now, that whilom smil'd,
Unseen, unscented, thro' the lonely wild,
Swells in full-cluster'd pride, and boldly vies
With POLYANTHUS of unnumber'd dyes.
Nor less the VIOLET here delights to shed
A richer perfume from a prouder head:
Wrapt in exub'rant robes, the bashful maid
Yet courts the gloom, and woos the dewy glade.
With her pied PANSY, once a vestal fair
In Ceres' train, low droops with am'rous air,
Stain'd by the bolt of love her purple breast,
And "freak'd with jet" her party-colour'd vest.
In rival pomp see either ROCKET blow,
Bright as the sun, or as the new-fall'n snow,
With gaudier LYCHNIS' vermeil hue combine,
And STOCKS in variegated vesture shine.
Gift of a Goddess, one pale LILY bends
Her milk-white bell, and freshest fragrance lends;
A second waves in meretricious glare,
Radiant with orange glow her scentless hair.

Tall TULIPS near their rainbow streaks disclose,
Aspiring ALCEA emulates the rose,
And HELIANTHUS, like the god of day,
Binds round his nodding disk the golden ray.
No gorgeous dyes the meek RESEDA grace,
Yet sip with eager trunk yon busy race
Her simple cup, nor heed the dazzling gem,
That beams in FRITILLARIA's diadem.
No more ignoble now, great MARO's theme,
CERINTHE freely pours her honey'd stream:
And MARTAGON, of classic honours vain,
Bears on his brow the gory-spotted stain,
Still darkly grav'd on each returning bloom
The moans of Phœbus, and the Hero's doom.
In gay MEZEREON's crimson-cinctur'd bush
Again revives coy Daphne's maiden blush,
And, as above she tufts her polish'd leaves,
A laurel-seeming crown the virgin weaves.
Late in the shadowy dell a sister form
Veil'd her green tresses from the wintry storm;
Ah! here how chang'd the charms our wond'ring eyes,
The rose-lipp'd Hebe of Hesperian skies!
Like Sol's full radiance, when he gilds the morn,
And deep red clouds his rising throne adorn,
PÆONIA round each fiery ring unfurls,
Bared to the noon's bright blaze, her sanguine curls:
While ŒNOTHERA sheaths in many a fold,
Of primrose scent and hue, her fainter gold,
Nor yet unbinds the firmly-clasping zone,
Till eve's mild lustre mingles with her own.
Behind, CACALIA clumps her arrowy wood,
And teems to fancy's eye a living brood,
When o'er her nectar'd couch papilios crowd,
And bees, in clusters, hum their plaudits loud.

Nor flowers for show alone, but herbs for use,
Before your shed their wholesome sweets diffuse,
Hoar LAVENDER with spikes of brilliant blue,
And MARIGOLD array'd in sun-bright hue,
With thee, "trim ROSEMARINE," whose verdant prime
Shines thro' the year, and lemon-scented THYME,
Pale-crested BALM, that cools the fever's rage,
Sweet MARJORAM, and life-preserving SAGE,
APIUM's light curls, SINAPI's glowing cheek,
Strong-smelling THYMBRA, Cambria's glossy LEEK.
Her long-fam'd badge, and HYSSOP's hallow'd dew
Bring health to man, and fragrant food for you.

First to his lord the vernal tribute paid,
For you ASPARAGUS expands his shade,
Marshals his mimic groves in close array,
And hangs a pearl on ev'ry tufted spray.
But first to you NASTURTIA loves to yield
The saffron-tinted horn, and emerald shield,
Where twilight marks with superstitious dread
The streams electric quiv'ring round her head.

So, young Iülus, o'er thy temples play'd
Heaven's lambent fire, and each fond breast dismay'd,
Till rapt Anchises, with prophetic joy,
Hail'd in the happy sign a second Troy.

Cheer'd by the softer clime, in wanton gyres
FRAGARIA lowly trails her purpled wires,
And, chill'd no more amid the Alpine snow,
Bids thro' the waning year fresh harvests flow.
Alike transported from the northern steep,
Or the cold margin of the fenny deep,
Smooth and unarm'd, the peaceful RIBES shows
Her pale green cups, all rang'd in pendent rows.
But with fierce air rough GROSSULARIA low'rs,
Girding with triple thorn her infant flow'rs,
Ere yet she join the laughter-loving train,
And sparkles in the bowl her brisk champaign.
With downy-vested robe, and spiky mail,
IDÆUS bends before the summer gale,
And still in autumn's lap he joys to shed
His gems of amber, or his rubies red.

Beyond, Pomona holds, in frolic vein,
Chang'd by Medean art, her motley reign.
Now mingling with th' alburnum's chyly flood,
She draws strange nurture from the foster bud;
Or now the kindred scion close she binds,
Till firmly cling th' inosculating rinds.
Slow, tomb'd in earth, evolves the seed's first shoot,
And ten long years delay the destin'd fruit,
Ere their lov'd females the fond anthers wed,
And curtain'd Flora veils the nuptial bed.
Far different these, no brood of spurious love,
Like full-arm'd Pallas sprung from pregnant Jove,
Crown the young root with ready-bearing spray,
Or bid December bloom, a second May.
Hence CERASUS with loftier crest uprears
His radiant stem, and drops ambrosial tears:
And PRUNUS hence a statelier head can boast,
Ere glitter on his brow the blue-ey'd host.
E'en Albion's APPLE her harsh juice refines,
Nor yields the palm to Gallia's mellow'd wines;
But, while she mellows, pales her roseate dyes,
Nor round her form the threat'ning lances rise.
Disarm'd alike, the virgin-vested PEAR
To luscious sweetness melts her pulp austere,
And, softer than the cygnet's silkiest down,
Her own Vertumnus weaves a verdant crown.
Ah! here no Nestor of the field displays
Thro' a third flowery age his length of days!
Quickly matur'd, as quick his wasting prime
Feels the foul canker of corrosive time,
And, tainting life's fresh current as it flows,
From sire to son the rankling venom grows.
Yet these, like man, in pamper'd pleasures gay,
Smile as they fade, and blossom in decay.

No more LABURNUM mourns her short-liv'd gold,
When the rough GOURD, in many a mazy fold,
Flings o'er her ringlets sear his giant bell,
And hoards the nectar in his deep-arch'd well.
As fleetly, LILAC, from thy various plume,
Or pale or purple, floats the rich perfume;
Yet long in leafy pride thy cheerful green
Pours a cool softness o'er the summer scene,
Where ling'ring still SYRINGA wafts afar
Hesperian odours from each milk-white star.
Fall'n, Latium, is thy LAUREL's elder fame,
Ere while the poet's, and the warrior's claim?
Two wood-nymphs here usurp thy honour'd place,
Rivals in form, in symmetry, and grace.
An Eastern dame, one boasts a broader shade;
More brilliant shines the Lusitanian maid,
Braids her dark olive locks with silv'ry wreaths,
And thro' the glade a balmy essence breathes.
Sweet EGLANTINE, with blushful roses gay,
And PRIVET, iv'ry tipp'd each polish'd spray,
Knit their close-tangled boughs, and twine around
A verdant fence, to shield the sacred ground.

Such, bright-hair'd CHLORIS, was the costly dower,
Thy Zephyr gave from sylvan, shrub, or flower.
Yet not for him alone thy sweets exhale,
And lend a mutual freshness to the gale.
Clinging to each fair bud, the fervent bees,
(Like halcyons nestling on th' unruffled seas)
Cull the clear wax, that builds their pensile dome,
And cradled embryos crowd the finish'd comb.
Hence, when boon summer swarms with insect life,
Kindles in yon full hive the clamorous strife,
Hoarse as the muttering winds, ere yet they sweep,
In conflict dire, the tempest-shaken deep.

Ye youths adventrous, whose indignant soul
No more can brook a parent's fond control,
Who scorn the limits of inglorious home,
And fain would form an independent comb;
Oh! haste, ere yet your straiten'd bosoms heat,
Parch'd by oppressive CANCER's fervid heat,

Ere angry Sirius fix his redd'ning ray,
Oh! haste, ye youths advent'rous, haste away.

See where, with hurry'd step, th' impassioned throng
Pace o'er the hive, and seem with plaintive song
T' invite their loitering queen; now range the floor,
And hang in cluster'd columns from the door,
Or now in restless rings around they fly,
Nor spoil they sip, nor load the hollow'd thigh:
E'en the dull Drone his wonted ease gives o'er,
Flaps the unwieldy wing, and longs to soar.

At close of day, when in her twilight robe
Grey eve envelopes half the weary globe,
O'er the still sense a deep'ning murmur grows,
And busy preparation mocks repose.
Hark! the shrill clarion sounds! full-arm'd for flight,
The-fresh-plum'd monarch waves her pinions light,
Pants for the morn, and chides the tardy night.

Thus, with impatient air, and anxious mien,
Gaz'd on each sinking star Sidonia's queen,
While her bold crew unfurl'd the flying sail,
And woo'd with every sheet th' auspicious gale;
Nor yet they dare unloose the vagrant prow,
Till gleams the dawn on Lebanon's dark brow.

Bursts the young day—and thick as driving sand,
Whirl'd by the blast o'er Libya's sultry strand,
Exulting myriads thro' the portal crowd,
And hail the orient sun in pæans loud.
Oh! stay, rash youths, the bold emprize forbear,
Till ripening Phœbus warm the temper'd air;
Nor brave yon pregnant clouds, which gathering form
A fearful front, sure heralds of the storm!
With course retraced, the wary wand'rers drive,
And seek once more the just deserted hive.
Hush'd as the boding calm, in act to spring,
Silent they pause, nor moves one flutt'ring wing,
While with rich nectar from the plenteous hoard,
Parental boon, each honey-scrip is stor'd.
The storm is past, and every freshen'd flower
Borrows new fragrance from the genial shower.
Mounts the glad chief! and to the cheated eye
Ten thousand shuttles dart along the sky,
As swift thro' ether rise the rushing swarms,
Gay dancing to the beam their sun-bright forms,
And each thin form, still ling'ring on the sight,
Trails, as it shoots, a line of silver light.

So, from the ice-cold regions of the north
The hardy Scandinavians issuing forth,
Horde upon horde in living waves impell'd
Crost the fierce Danube, or the lazy Scheldt,
O'er sad Hesperia spread their iron sway,
And swept the conquerors of the world away.

High pois'd on buoyant wing, the thoughtful queen
In gaze attentive views the varied scene,
And soon her far-stretch'd ken discerns below
The light Laburnum lift her polish'd brow.
Wave her green leafy ringlets o'er the glade,
And seem to beckon to her friendly shade.
Swift as the falcon's sweep, the monarch bends
Her flight abrupt: the following host descends,
Round the fine twig, like cluster'd grapes, they close
In thickening wreaths, and court a short repose.
While the keen scouts with curious eye explore
The rifted roof, or widely gaping floor
Of some time-shatter'd pile, or hollow'd oak,
Proud in decay, or cavern of the rock;
Insidious Man, with specious friendship, forms
A straw-built cot, to shield them from the storms,
With many a prop, to fix the future comb,
And scents with charmful sweets the vaulted dome.
Swept from the branch, he bids whole myriads fall,
By kind compulsion, in th' inverted stall,
Drives with dank fume the loit'rers from the spray,
And wards with leafy bough the noon's fierce ray.
Thro' eve's dim veil he bears th' unconscious load,
Wrapt in soft slumber, to their new abode,
Screen'd from the east; where no delusive dawn
Chills, while it tempts them o'er the dew-damp lawn,
But, as on loaded wing the labourers roam,
Sol's last bright glories light them to their home.
Ah! better far to trust the hollow'd oak,
The rifted roof, or cavern of the rock,
Than faithless Man! he means but to betray
Your easy faith, and seize the certain prey.

Thus Gallic CHARLES, with deep-dissembled art,
Veils the dark venom of his vengeful heart,
With well-feign'd warmth each patriot chief invites
To share the pomp, and grace the nuptial rites,
Cement of peace and union. Ah! forbear,
Ye patriot chiefs, the nuptial pomp to share!
Thro' rose-crown'd Hymen's radiant torch waves high,
And nought but sounds of rapture rend the sky,
Behind, fell Bigotry with holy leer,
That blesses while she stabs, and coward Fear,
That strikes unseen, scowl o'er the genial feast,
And mark for death each unsuspecting guest.
The deep bell tolls! red flares the flaming brand,
And gleams the poniard in the murderer's hand.
Not beauty's self, array'd in every charm,
Nor infant pillow'd on its mother's arm,
With fiend-arresting smile, nor reverend age
With locks of snow, can soothe a Zealot's rage.
Vain are they all! before fanatic strife
Sink the fond names of mother, sister, wife,
With each endearing tie, benignly given
To sweeten life, and form the soul for heaven.
Thus, Superstition, thy empoison'd source
Pours the foul streams, which shape their baleful course
To seas of blood; yet not from thee alone,
Nor the fierce despot on his blood-stain'd throne,
Flow half the evils, that infest mankind,
And fling their iron fetters o'er the mind.
Witness, sad Gaul, when thy remorseless host,
All order trampled, all religion lost,
Rent round their captive king the rifted air,
And drown'd in savage shouts his dying prayer.
Yet to a stern usurper's dire decree
These slaves could crouch, and bow the abject knee,
Teaching too well what slender bounds divide
The Sceptic's cavil from the Bigot's pride,
Which, like the moon's young horns, ere yet they bend,
Seem to recede, but in a circle end.
From scenes once dear, now red with kindred gore,
Haste, ye lorn outcasts, to the happy shore,
Where still true liberty unsully'd smiles,
And true religion every care beguiles.
Not the proud dame with supercilious air,
Who scorns her heaven with heretics to share,
Nor she in puritanic stole, that tries
By cold unfruitful faith to scale the skies,
But the meek maid in charity enshrin'd,
That calls to bliss the good of all mankind,
Blots out each error with the tear of love,
And points thro' sorrow's cloud to realms above.
When, by a second tyrant's dread command,
Your gallant sires forsook their native land,
When to fair Albion's isle they crossed the main,
Bore her new arts, and swell'd her warrior train,
Ah! little thought they, ere the circling sun
Thro' one short century his race should run,
Their flying sons from anarchy and spoil
Again should seek the same protecting soil,
Beneath her guardian oak a shelter find,
And grateful bless the Friends of Human Kind.

Nor blush, ye Britons, for the generous aid,
Too often with foul ingratitude repaid.
If this be error, 'tis to err with thee,
Sweet nurse of every virtue, Sympathy;

If this be error, such mistaken zeal
E'en pitying angels might vouchsafe to feel.
Bend with complacence from the sapphire throne,
And joy to find a fault themselves might own.
Sav'd by her kindness, foster'd by her hand,
Fly, base dissemblers, fly the hallow'd land;
E'en from the pulpit of the PRINCE OF PEACE,
Whose awful word bids war and slaughter cease,
Hurl your anathemas, invoke your God
To stretch o'er Albion the avenging rod!
Still, by that God protected, she defies
Your open threats, your secret calumnies,
Still shall the bright rewards, she claims, be given,
Applauding nations, and approving heaven.

As to new life successive nations spring,
And young ambition plumes the vent'rous wing,
A second chief with love of empire swells,
Panting to lead fresh subjects from their cells.
Now shrill below the vagrant seems to moan
Her suit resisted, and her hopes o'erthrown;
Now from above the deep-ton'd parent yields,
And gives the welcome sign to scour the fields.
Soon as Hyperion wakes the rosy dawn,
Bursts the full swarm impetuous o'er the lawn;
Lur'd by no tempting twig, at once they roll,
A rushing stream, and reach the ready goal.
For late the lynx-ey'd scout, in nice survey,
Had mark'd the ravage of ungenial May,
Where the lorn bee-herd wail'd his empty shed,
Its stores exhausted, and its tenants dead.
With joy-mix'd wonder now that bee-herd sees
In confluent clouds descend the stranger bees,
And hears again the merry hum resound,
That erst the close of cheerful labour crown'd.

So mourn'd Arcadia's swain his honey'd host,
By keen disease or keener famine lost,
Till his fond mother, on her glassy throne,
Heard thro' deep Peneus' wave the filial moan.
Nor with less rapture due observance paid
To soothe, Eurydice, thy injur'd shade,
He saw the slaughter'd steer's fermenting gore
Shoot forth a light-wing'd brood from every pore;
Swift thro' green Tempe's flowery shades they drive,
And teems once more the renovated hive.

Behold yon swarm, whose restless numbers rush
Thro' the rent air, and bow the pliant bush!
In vain the dome, with balm and bean-tops drest,
Would woo the wearied wanderers to rest,
In vain the tinkling brass would court their stay,
Or clouds of scatter'd dust obstruct the way,
And all in vain Cornubia's sons invoke
With fervent prayer the Spirit of the Rock:
Again, like prodigals, returning home,
They seek the shelter of their parent comb.
Sinks their lov'd queen beneath a cureless wound,
Or with unequal wing hath press'd the ground?
Oh! blush, ye flattering imps of human state!
Still duteous near the fond attendants wait,
Watch her fast shrinking form with ceaseless care,
And e'en in death her hapless fortune share.
Perchance with reckless haste the youths have flown,
While yet their chief, unequal to a throne,
Rests in her embryo folds; and now elate
They hail her bursting thro' the waxen gate.
What dares not curious Man? as forth she springs,
And proudly waves her full-expanded wings,
Seiz'd by his artful grasp, and quick convey'd,
Pants in the crystal vase the captive maid,
Strikes with impatient horn the lucid screen,
And wonders at the viewless bar between.
With agonizing hums, and deep despair,
See how her subjects hover in the air!
In long and listless curves the loiterers rove,
Nor bend the bough, nor seek their natal grove.

Not more distracted, nor with moans more loud,
Thro' Warsaw wildly ran the maddening crowd,
When, dragg'd by ruffians 'mid the gloom of night,
Their much-lov'd Monarch vanish'd from the sight.
From street to street, regardless of their way,
In vain pursuit the scar'd attendants stray,
Ten thousand tongues at once the welkin rend,
"Lost is our king, our father, and our friend!"
But ah! how faintly could the pencil trace
The smiles of joy, that beam'd on every face,
And yet more faintly could the poet's lay
To the rapt ear the heartfelt bliss convey,
When burst from every lip th' auspicious word,
"Still lives our king, our father is restor'd!"
Fain would the guards the thronging thousands stem,
That kiss his knees, or touch his garment's hem,
Yet, as around the tides impassion'd press,
Praise, while they would resist, the kind excess.
Now red with anger, now with horror pale,
They list all breathless to the varying tale,
Then swells again the soul-enchanting sound,
"He lives, he lives!" the echoing walls rebound.

E'en thus, conspicuous on the topmost tree,
In the full bloom of youth and liberty,
No prisoner now, yon insect leader stands,
And seems to issue forth her dread commands.
Thick, at the welcome sight, as pattering hail,
Or summer showers fast streaming o'er the vale,
Down from their dizzy height the hosts descend,
And to their queen in due obeisance bend.
Round her dear form in panting circles play,
Or hang in life-swarm ringlets from the spray;
Just as she moves, in measur'd pace they beat,
With close-sheath'd sting, and climb the proffer'd seat.

Such was the spell, which round a WILDMAN'S arm
Twin'd in dark wreaths the fascinated swarm,
Bright o'er his breast the glittering legions led,
Or with a living garland bound his head.
His dextrous hand, with firm yet hurtless hold,
Could seize the chief, known by her scales of gold,
Amidst the wondering train, prune her thin wing,
Or o'er her folds the silken fetter fling.
Still round their captive queen, where'er she treads,
In harmless gyres the duteous circle spreads;
Or, as the spaniel thro' the tainted dews,
With sense unerring, his lost lord pursues,
From the fresh-scented path their horns inhale
Her balmy breath, and snuff the fragrant gale.

Nay such the strong-link'd chain of sweet control,
Which binds to one fair head th' accordant whole,
E'en when a second moon serenely bright,
Sheds on the infant realm her silver light,
Their widow'd throne in frantic mood they wail,
And cast, desponding, down the moulded scale,
Their young deserted, rifled each full comb,
Loaded with sweets, they seek their long-left home.
But should, encradled in its tissued shell,
An embryo monarch grace the regal cell,
Yields black despair to hope's inspiring beam,
And flows again brisk labour's cheerful stream.

Or, if indulgent Man, with kind relief,
Bears to the sadden'd scene a stranger chief,
Soon as they mark her awe-commanding gait,
What crowds of raptur'd myriads round her wait,
Stretch the fine feeler, clap the gladsome wing,
And from the hoard their choicest nectar bring:
Row within row they range in order gay,
Bowing submissive to an alien's sway.

So, bright with joy, shone Albion's patriot flame,
When to her shore the great DELIVERER came.

What mean the swarms of yon o'erflowing state,
That rush so widely thro' the narrow gate,

Then lingering there in cluster'd mazes crawl,
And weave a breathing network o'er the wall?
Their queen unfruitful, or her offspring lost,
No maid imperial leads the vagrant host.
And sooner in the headless trunk shall glide
Thro' vein and artery life's purple tide,
Or rash democracy's o'erweening zeal
Poise the nice balance of a nation's weal,
Than the light honey'd denizens of air
With alter'd impulse scorn a sovereign's care.
Still closely clinging to the parent shed,
Like some fair suburb round a city spread,
Twixt the black rows of busy-twinkling feet
Peeps in contrasted hue the snow-white street,
But, like that suburb, unprotected, lies
To each sly lurking foe an easy prize.
No guarded portal there defies the grasp
Of the huge field-mouse, or the wily wasp;
By heat dissolv'd, or candied by the cold,
In vain ye store within your hoards of gold,
Autumnal frosts shall nip your ripen'd bloom,
Or wintry tempests sweep you to the tomb.
With cruel seeming, yet with kindest aim,
Shall Man demolish all the new-built frame,
Bid on fresh walls your native mansion rise,
Where the safe bee her shelter'd labour plies,
Or with pellucid arches crown the dome,
And gaze delighted on your growing comb.

E'en first emerging from the silk-lin'd cell,
With mutual wrath the royal bee-nymphs swell.
Hence, provident of peace, the watchful guard
Keep o'er each ripening queen incessant ward,
Thro' the pierc'd wax convey nectareous store,
Nor yet unbar the firmly-fasten'd door,
Till arm'd for instant flight, thro' the thinn'd veil,
Her full-fledg'd wing, and deep-ton'd voice they hail.
Yet oft that fascinating voice can charm
The palsied sense, and all their cares disarm,
While, sprung like lightning from th' unguarded cell,
She tears each kindred larva in the shell.
Ceas'd is the sound? with quick reviving force
Her subjects stem their chief's impassion'd course,
Boldly repel her from the palace gate,
And by a rebel seeming save the state.

But when two twin-born monarchs burst to day,
Claiming with equal rights a sovereign's sway,
Fiercely they rush, unknowing how to yield,
Where crowds receding clear the listed field.
Mark how with sharp-edg'd tooth they seize the wing,
Curl the firm fold, and point the venom'd sting!
Now, as they view the death-fraught danger nigh,
With quick recoil and mutual dread they fly,
Now, scorn'd all female fears, each hardened foe
Turns to the fight, and dares the coming blow.
Ah! soon the victor queen, with well-aim'd dart,
Strikes thro' the parting scales, and rends the heart;
So stern Pelides ey'd brave Hector round,
Then thro' the jointed mail he gave the fatal wound.

Again in air far mightier hosts arise,
And shoot a starry splendour thro' the skies,
Bright as the finny shoals, whose millions sweep,
In sun-gilt pride, thro' Scandinavia's deep.
Like these, in separate bands the swarm divides,
And either band a youthful leader guides;
Round the slim branch descending swift they cling,
And sever'd still, in rival clusters swing.
Ah! thus divided, feebly shall ye dare
With wasps or hornets the unequal war,
And feebly thus shall your thinn'd tribes maintain
Each varying labour of the honey'd reign.
To death devoted for the general good,
One regal victim sheds her sacred blood,
And reigns enthron'd o'er all the ELDER dame,
Known by her stately port, and breast of flame.

Or, should at once two issuing armies spring,
And their clos'd columns mingle on the wing,
With jealous fury fir'd, they rush to arms,
Dart the fierce glance, and hum the hoarse alarms,
In mutual wrath give many a ghastly wound,
And many a warrior insect strews the ground.
One monarch slain, th' exulting victor leads
United hosts triumphant o'er the meads.

Thus, on fam'd Bosworth's field, with kindred blood
Their faulchions stain'd, contending Britons stood;
Fathers with sons unnatural warfare wage,
And brothers sink beneath a brother's rage.
He falls! the tyrant falls! quick, at the word,
Drops from the warrior's grasp th' uplifted sword,
In shouts of joy relenting foes combine,
And in one wreath each hostile rose entwine.

(*To be continued.*)

Correspondence.

*** *These columns are open to Subscribers, so that their queries, replies, correspondence, and experiences, may be* fully *and* faithfully *recorded: and for the discussion of all theories and systems in Bee-culture, and of the relative merits of all hives and appurtenances, that the truth regarding them may be ascertained. The Editor, therefore, must not be expected to coincide with all the views expressed by the various writers. All Correspondence is addressed to the Editor.*

THE STANDARD FRAME.

I have been thinking a good deal since the appearance of this month's *Journal* about the Standard Frame question, and anxious as I am that some one size should be settled upon for general adoption, I am not at all anxious for the selection of two, nor can I conceal from myself that it is very undesirable that the size should be fixed by any individual, however high his authority, and however large the number of those who would unhesitatingly follow his lead. The British Bee-keepers' Association is the body from whom we should, *primâ facie*, expect action in the matter, but at present they apparently do not see their way; and if at any future time they should decide upon moving, they will, I fear, consider it beneath their dignity to adopt as their standard one or both of two frames which have already been called so by any one person, and a third standard would be the result. At the same time there is to my mind no more crying want among beekeepers than that of a standard frame; and if the proper body refuse to act, I for one am not prepared to wait until they are sufficiently alive to our wants; but if an attempt is to be made to settle the matter without them, the question arises whether it is necessary to have two different standards. The object you appear to aim at in having a second smaller standard frame, is to suit those who reside 'where the state of the country will not warrant larger hives,' and if both of the proposed frames were found alike in first and second class hives, this object might be attained; but as matters are at present, I fear that the result of your proposal would be that the size of the frames adopted would be regulated more by the length of the apiarian's purse than by the nature of his

district. Your first proposed standard frame is large and taper, your second smaller and rectangular; the first is at present only used in the more expensive hives, the second in the cheaper ones. Now, if bee-keeping is to take root among the many, and hives are to be numbered by the hundred among cottagers, it is useless to expect them to give anything like 30*s.* per hive; so that, whatever sized frame be adopted as standard, a cheap cottager's hive must be brought out to take that frame, otherwise we shall be having one sized hive for the rich and another for the poor, irrespective of bee-pasturage.

In a good country we should have the squire and parson with first-class hives, taking Standard Frame No. 1, 16 inches by 10 inches or thereabouts; and the cottagers, simply on account of the expense, with Woodbury's, taking Standard Frame No. 2, 14 inches by 9 inches. Then, when the squire or parson dies, and his successor, as is very probable, cares nothing for bees, the apiary is broken up, and what a chance for the cottagers who have profited by the example set them, and adopted the bar frame to obtain hives, and how annoying if these have a different frame, too large perhaps for the parish extractor.

In a bad district, on the other hand, for which the small frame is intended, rich and poor will have similar frames; but why should they be deprived of the advantages of a taper frame? why, if we must have two standards, should they not be exactly the same except in size? It may be the advantages of the taper frames in manipulation are outweighed by other considerations; a makeshift hive is not so easily contrived for them, nor do small frames for queen-raising fit at once the nucleus hive and the taper frame. This is one of the points which require to be settled after mature consideration.

Looking at the matter as a whole, I cannot see why we must have two standards. Taking the large frames, such as the Sherrington, Lanarkshire, and Abbott, as about 16 inches by 10 inches, and the various hives of the Woodbury type, containing frames of about 14 inches by 9 inches, we find about eight large are equivalent to ten small frames; if, therefore, ten large frames form too large a hive for a district, the beekeepers there must use only eight, and as the Abbott hive was made originally with eight frames, I imagine there is no particular objection to this plan, or to the shaped hive it would form.

There is, however, another hive intermediate between the two kinds already mentioned, and that is Lee's Cottager's Hive, which gained the prize at the Alexandra Palace, the frames in which are taper, 15⅛ inch at top, 14½ inch at bottom, and 9½ inch deep; and as the judges adopted this as the best cheap hive, perhaps the Association might be induced to look upon its frames as a sort of compromise between the large and small ones, and adopt 15 inches by 9½ inches as the standard. Personally, I care not what frame is chosen, and should be quite willing to adopt any size in reason, but I do hope we shall be spared two standards.

I quite admit that no one has so great a right as yourself to take a decided step in the matter, and that you have done all you could to persuade the Association to lend the weight of their authority towards settling it; still in the interests of the good cause let me urge one more attempt, and if that fail, I, for one, will willingly adopt any frame you may decide upon, and do my best to induce others to do the same.—H. Jenner Fust, Jun., *Hill, Falfield, Gloucestershire.*

[A full description of the Standard Hive will appear in our next. We have long intended to issue 'make-shift' hives, which shall be of same patterns internally as the more expensive, at prices within the reach of all. We are quite willing that the Standard frame, or frames, should be sanctioned by the Association, but cannot afford to lose another year in waiting.—Ed. *B. B. J.*]

THE HARVEST IN RENFREWSHIRE.

After the miserably poor bee season of 1875, the unpropitious opening and continuous gloomy prospects of 1876 were most discouraging to all bee-keepers. June passing, and getting well into July, I began seriously to consider the propriety of feeding strong colonies to save them from starvation, but the tide turned at last, and the honey flow, with occasional breaks, ran well on to the close of the season.

Besides bell-glasses and odd pickings from swarming and other weaker hives, from two strong old octagon colonies, and two prime swarms hived singly in frames with empty comb, I harvested first four, then nine, and last eight, in all twenty-one octagon supers; four of the last batch were not, however, sealed out, and as much of the honey was given away in presents, I regret my inability to give the exact weights with the same precision as did your esteemed correspondent, J. E. Briscoe, of his excellent harvest of 144 lbs. from one octagon colony, detailed in October number, further than what went to market—over two cwt. finest super comb.

Comparing seasons, my best colony gave nine octagon supers against four last and ten in the magnificent season of 1868.—A Renfrewshire Bee-keeper.

WESTBURY-ON-TRYM BEE-KEEPERS' ASSOCIATION.

This neighbourhood being largely a milking one ought also, I believe, to be a good one for honey. Yet, strange to say, a bee-hive is quite a novelty, and the bar-frame was quite unknown until Mr. H. W. Carpenter had some made from the description given in your *Journal.*

Having, in company with him, visited the Weston-super-Mare, and the Alexandra Palace Bee-shows, we resolved to take the first opportunity of attracting attention to the subject. The Clifton Chrysanthemum Show, held on the 15th and 16th November, afforded the first opportunity. So, having gained the Committee's permission, we provided three unicomb glass hives for show; Mr. Carpenter sending specimens of Ligurians and hybrids, and myself sending a comb of English, taken from a stock which were given me for driving them on the 2nd of September last, and fed up. The bees proved the greatest attractions of the Show, and Mr. Carpenter's Ligu-

rians were highly commended by the judges. Thanks to fine weather, they were hived again without having sustained much damage.

On the day following the Show a few bee-keepers met, and decided to start a Westbury-on-Trym Bee-keepers' Association, O. Pease, Esq., consenting to become chairman, the objects of the Association being the purchase and circulation of bee literature among the members, and the encouragement and improvement of bee culture on humane principles in the neighbourhood.

If our little effort is worthy of notice in the *Journal*, it may cause some of your Gloucestershire readers, with whom we should be glad to co-operate, to communicate with us.—CHARLES CHAPLIN, Hon. Sec. *pro tem.*, *Westbury-on-Trym, near Bristol.*

PROPOSED SCHOOL OF APICULTURE.

When will the School of Apiculture be open? Should very much like to attend. Please give us all particulars as soon as you can.—SOMERSET.

CAUTION AS TO THE USE OF FEEDERS.

Those who use feeders should see that the syrup regularly and gradually decreases, or the bees may starve while 'crowned with plenty.' I have been dreadfully bothered lately by the crystallisation of syrup, and consequent stoppage of feed-holes. Have tried various recipes, but have found no infallible prevention. Can any of your readers help me?—BEE-KEEPER.

FOUL BROOD.

Perhaps some English bee-keepers can give their experience to confirm, or confute, the advice of the celebrated Dzierzon, as quoted in *L'Apiculture* of October, 1876, in which he says:—'Before salicylic acid was introduced, the only means of combating foul brood was the taking away of the queen from the hive. Now-a-days some would hold to the former plan and abandon altogether the latter. Instead, it is convenient to make use of the one and the other, to make both forces act for the same end. When one can take the enemy between two fires, this is always the better course.' As to weakening the stock by taking away the queen, he remarks:—'Who would reproach a doctor for weakening a patient with too meagre a diet, or with loss of blood, if by such means he succeeded in saving the patient?' He adds:—'To purify, in Hilbert's way, for example, 10,000 cells of a stock which has 40,000 cells with brood is a Herculean work; the more so because near the diseased cells there are healthy ones to be scrupulously respected.' Dzierzon says the task is simplified by taking away the queen.—ARTHUR C. DANYELL, *Lastra a Signa.*

MOVEABLE DUMMIES.

I have lately been making a hive, and in it I have adopted a method of doing away with the moveable dummy. Now I have, as you know, long looked upon a moveable dummy as an intolerable nuisance and an inconvenient hindrance when opening a hive for inspection, &c. My method is simply this, the hive side is double with dead air space, the inner wall runs as the bar-frames upon the zinc runner, which is continued the whole width of hive front and back, and when the hinged top piece, which lies flush with and is hinged to the top of the outer wall of the hive, and running its whole length, is opened, the inner wall, or dummy, is pushed up close to, and parallel with, the outer wall of hive, thus giving an extra space for lateral movement of the frames of one inch, or more if thought necessary. Of course, both the double sides of every hive where this principle of dead air space is used could be arranged in this way, which might be found more convenient to some when operating with the hive, so that really the inner wall of the hive is a running dummy, though never to be removed out of the hive, as it cannot be taken out. I, however, have it on one side only, as I do not believe in, nor have I found in practice, it to be necessary to have double-sided or dead air spaced walls to my hives. A sketch of a section cut through the upper part of one side of the hive will, I think, show fully my suggestion of, I think, the most simple means of obtaining lateral space and abolishing the troublesome moveable dummy.—CHAS. H. EDWARDS, *October*, 1876.

[The sketch forwarded showed practically the same arrangement of side walls as that contained in *our* hive of 1875, with this difference, that the *inner* side wall, when the top flap is lifted, can be moved up against the *outer* one, giving full lateral space, to the very bottom of the hive.—ED.]

THE IMPROVED QUILT.

I am pleased to see you recommend 'sheets' as well as 'quilts' and blankets in tucking up bees for the winter. I have used 'sheets' made of thick bed tick for the last six months on those hives I have not supered, and find them much better than the quilts alone. I have them hemmed round (to prevent fraying) and two feeding holes cut in them, over which I have a lap sewn on one side of the holes. I find that, as bees (at least mine) rarely cluster in the centre, I can more easily get to the clusters to feed them, by one or other of the side feeding holes. —OMNIA EXPLORATE.

BEE-HOUSES.

I find several of my stocks in bee-houses are queenless; but as they yielded 20 or 25 lbs. net of honey I must not complain, but learn a lesson and only keep twenty, instead of near forty, in one house. It being a decagon shape, I thought the queens would not mistake the entrance. It is very handy for feeding and observation having them all under one roof, but it has its drawbacks.

I have taken over 300 lbs. net from my 18 stock hives and hope to take another 100 lbs. from them. So that the expense of feeding has handsomely repaid me for the 2*l.* worth of sugar for syrup, having produced 20*l.* worth of honey, and still leaving

same number of stock-hives (well stocked with honey and bees) as last year. Without feeding I should have lost them all.—G. Tisoe.

HIVE PROTECTION.

I send you my plan for protecting wooden bee-hives the year round,—

Four Welch slates duchess, 24 by 12 inches, painted white; place two flat on the top, Nos. 1 and 3, under the projecting ends; place one each, Nos. 2 and 3, slanting and leaning against the hive. In front, as a shade before the entrance, a piece of sheet-iron, 9 by 6 inches, painted black, placed in a slit in a stick and thrust into the ground, the iron plate standing two-thirds above the floor-board.—Sleaford.

ARTIFICIAL POLLEN IN AUTUMN.

I see you doubt the carrying in of artificial pollen in autumn. The other day some robbing was going on, and to ascertain out of which hive the robbers came I dredged them with flour as they hovered about the robbed hive. Soon afterwards noticing that the flour which had fallen on the alighting board had disappeared, I put some more there and soon found the bees busy 'pocketing' it. — G. Rogers, *Kennington*.

FOUL BROOD.

The experiments of Dr. Schönfeld, of Germany, have indisputably proved that foul brood is caused by the presence of *Micrococci*, and that the spores of this fungus leave the dried-up brood, float in the air, and thus spread the infection. I wish to direct the attention of some of our microscopist friends to a further question, which, so far as I know, has not been solved, viz.,—How long will these spores retain their vitality when separated from or deprived of a *nidus?* If this can be discovered, and a limit set to the vitality of the spores, then it is evident that by constantly excising the young brood of infected hives for the required time, the fungus will have exhausted its powers, and the stock may be saved. For example, it would be easy to catch the spores in cotton-wool, as Dr. Schönfeld did, and by placing this cotton under conditions similar to the combs of a broodless hive, observe how long the micrococci continued to exist there.

Another question occurs to me, By what other means could micrococci be destroyed in similar circumstances? Will a dry heat of a certain degree do so? Will the fumes of carbolic acid or other disinfectant do so? Or do these disinfectants merely prevent the needed condition of the nidus, and thus deprive the spores of a suitable resting-place? On a solution of these problems depends very much the question whether infected combs may be cured by any of these methods.

I have resolved on trying the cutting out process. It may be a costly one; but I do think that, with the aid of a good microscope, some means may be discovered of escape from the dreadful alternative of wholesale immolation, at least when the disease is in its incipient stages. With a good strong stock I have some hope of overcoming it, for I found on a second examination of an infected hive that the bees had entirely removed the foul brood from the combs where it was seen ten days before, although it continued to manifest itself on fresh combs.—W. R., *Dundee*.

INVERTED HIVES.

Respecting the method of obtaining honey by inverting the hive, I beg to say that I have taken a super of 40 lbs. weight from a stock in a straw skep that I have had four years, and which has never swarmed. The hive was a round-topped one, with a hole cut through the top, which I placed on a kind of double floor-board. On the top of the whole I placed a double-walled Woodbury hive, with legs, and having bored three holes through the floor-board of the Woodbury, left it to its chance. The skep when returned to its former position weighed 30 lbs. —Wm. Gee, *Ashfield Crescent, Willaston, Nantwich*.

BEE-KEEPING EXPERIENCES.

By Cyprian.

It appears to me to be of little use to supply hives with old comb, for in two instances this season the queens have refused to deposit eggs therein, occupying the new comb only, even the small pieces of new made by the bees to fill up the spaces not occupied by the old. How can this be accounted for? The comb was quite sweet, had not been bred in, some only tinged a slight brown. In a third hive her majesty was not so particular, but used the comb at once, quickly filling two frames with brood. Have any of your readers found their queens so fastidious?

The query has arisen in my mind as to how far bees can see. I have watched their homeward flight (against the sky), and notice the moment they get over the hives they drop like stones and make for the alighting-boards of their respective hives, which are among bushes and have a high hedge in front of them, so that it is impossible for the bees to see the hives until they are over them. When they alight on the boards, if they happen, as they frequently do, to drop to the right or left of the entrance, they poke about in the most stupid manner, trying to push their way through the cracks at the junction of hive and floor-board, and frequently take another short flight, generally dropping nearer or opposite the entrance. Now one would imagine that the bees would at once discover their mistake and make at once for the entrance after landing on the alighting board.

My experience of the five-pin bee-trap is the same as S. F. Clutten. The bees got across the pin, pulled it up with their fore-feet, and walked in; the hole would only just let a bee pass. Bees are doing well. Still honey-gathering from the ivy, of which there are large quantities in this neighbourhood, and storing pollen. On the 6th of August I introduced an English-bred Ligurian queen into a black stock of bees. On examining the hive on the 6th of October, very few black bees remained, clearly

proving how quickly a hive becomes depopulated if breeding is not kept up. I have tried the 'Finzel's new Crystal's' sugar for syrup. It makes a capital food. I should think far preferable to the common lump containing lime and beet. I use 7 lbs. to 3 pints of water. This makes a thick food. The sugar costs in Bristol 3½*d.* per lb. retail.

Is pollen-gathering a certain sign of breeding?—[No.—Ed.]

FURTHER EXPERIENCES WITH BEE-HIVES.

Last week I drove two hives with the intention of putting the whole of the brood combs in a bar straw-hive which I have had some time in preparation, but, strange to say, found no brood in either to speak of, and in one but very few bees. This one was, however, heavy with honey and had a swarm driven from it in May, and was in a straw skep and had evidently raised no queen after the driving which was performed very successfully. The other was in a box-hive and was also heavy and well stocked and had a full super removed from it a few weeks ago. Having no box the same size, I placed a straw skep over it into which the bees or the major part of them ascended; I then cut out the combs of both hives with a honey-knife, and having made a small wooden grating, selected the straightest and fastened them securely in the frames and having all finished united the bees to them. In two days after I proceeded with the assistance of my son to take away the tapes and lathes, and had succeeded well with five out of the seven when, in removing one of the small laths, the comb being heavy with honey fell into my hand and my boy who held the other, in endeavouring to do the same with his, shook it out on the ground. It was fortunate this was tolerably old comb or there would have been a regular smash up. As it was no great damage was done, and the combs were again fastened in the frames, and I have no doubt are securely fastened by this time by the bees. I think if we had held the frames wrong way up, the accident would not have happened, as the bees had apparently fastened them well at the top. The bees, however, have been much agitated ever since they were placed in this hive running about as though in search of something, and I fear an accident has happened to the only queen the two stocks possessed. — C. Shufflebotham, *Chapel Fields, Coventry.*

PLASTER DUMMIES.

Bee-keepers, in general, like myself have, no doubt, noticed now often bees do well and survive the worst of our winters when they have taken up their abode under the roof or between the ceiling joists of some house. There are various reasons to assign for this, one may be that the large space surrounding them prevents the condensing of vapours on their combs, thus they are free from dampness so common in our box-hives. I think also the mortar and plaster which surround them, being of an absorbent nature, may account for the absence of that discolouring so often seen in hives; and assuming that there is more in this latter reason than appears at first sight, I am providing some of my hives with bars into which I have fitted a casting of plaster half an inch thick, tied in lightly, much as we should tie a piece of comb. These I purpose using as dummies, one or more on each side of their combs during the winter. After a prolonged frost I shall take these out and give others that have been thoroughly dried. My idea is, that as plaster-of-Paris absorbs a large quantity of moisture, it will in a great measure prevent the discoloration of combs caused by dampness, and as a consequence promote the health of my bees. The mode of making these is, I have frames made of wood just small enough to drop into one of my bar-frames; these I lay on a large sheet of blotting-paper upon a table. Having prepared the plaster by wetting until it is of about the consistency of cream, I pour sufficient to fill one of these frames, levelling it with my honey-knife, and scraping off what is not required into the next frame, which I fill in a similar way. While the plaster is wet I cut two holes with a wadding-punch, and if these bits do not chance to come out with the punch they are easily removeable when the affair has got dry. I do not trouble to tear off the blotting-paper as being like the plaster of a porous nature. I purpose placing the papered side next to the combs; thus I think the bees will have less objection to cluster round between it and their food if they require to do so. The holes I spoke of may assist in allowing the moisture to pass through to the other dummies; but their chief use is for hanging them up when not required. At least this idea may serve as an experiment, and its results, with your permission, shall appear in the columns of our useful *Journal*.—A Hampshire Bee-Keeper.

SUNFLOWERS AND BEES.

On reading a recent number of the *British Bee Journal*, I see that 'Sunflowers' have been successfully grown for the use of the 'Honey Bee,' having had many of those flowers this summer we found that at first the honey bees frequented them, but after a very short time humble bees seemed to have driven the others off and to have taken quiet possession of the flowers. I should be glad to know whether this has been the experience of anyone else as well as myself.—C. S.

NON-CRUSHING LIFE-PRESERVING FRAME-QUILT AND MATTRESS.

Any bee genius can make it, and for his guidance I tender the following directions:—

1st. Make a frame 17 in. by 17 in. of the lightest material 1¼ in. wide, ⅜ in. thick, corners dove-tailed or halved. Mortise into the frame two bars, ⅜ in. by ⅜ in. at equal distances, and make a small hole near each corner of frame.

2nd. Procure a yard of brown strainer or cheese-cloth; Barnsley make is the best, being firmer and wiry; cut it into four equal parts, which will be found sufficient for four frames of the above dimen-

sions, and suited to Mr. Abbott's famed Cottage Woodbury.

3rd. Get a piece of fine perforated zinc, 9 in. square, from which cut out four rings, ¾ in. wide, and the size of your feeding-bottle, to each of these rings solder on four legs ⅜ in. long; tin-tacks do capitally by taking off the points: it is necessary to have the four legs. Abbott's Cottage Woodbury hive has four, but his bees have six: by-the-bye I see one author pictures his bees as having only four. Stitch ring in centre of strainer, cut out circle for feeding-hole, tack strainer to frame, using tailor's stay-tape to secure it: when not feeding paste stout paper over the hole.

4th. For winter mattress purchase 2 yards of 36-inch strong canvas or forfar, which will make four mattresses the size of frame; bolster their sides 3 inches, cut out circular hole for feeding-bottle corresponding with hole in frame, stuff with straw chaff, and slightly tuff them. When summer quilts are needed squares of stout brown bed-tick will be found to answer well, and will lie flat upon the frame. Put four pegs, ⅜ in. high, into wall of hive to keep it in its place, the frame quilt, which place cross-ways, of hive-frames.—Lincolnshire.

BEES FRATERNIZING.

A short time ago I got a stock of Ligurians from the clergyman who is leaving this parish for a distant one, and who is much embarrassed as to moving his bees. When placed in the neighbourhood of my three stocks of black bees many of the foreigners strayed into the neighbouring hives, where they were hospitably received, and commenced working with the black bees in perfect unity. I see some of them going into the black hives laden with pollen, and others fanning on the flight board; and there are no dead bodies or other marks of strife to be seen. This is contrary to all I have read; but I suppose there is no rule without exceptions.—*Londonderry.*

EXPERIENCE—THE QUILT—WAX GUIDES.

As you were kind enough to insert and reply thereto, a somewhat lengthy series of questions last year on swarming or non-swarming (Sept. pp. 104–6), I again venture upon your kindness, well knowing that anything that tends to the well-being of an apiary is at all times acceptable, yet I do not wish it to be thought that I aspire to be termed a bee-master, still what I have done, others may do if wished. I will first state that the bees in the hive upon which I am about to make a few remarks have never swarmed since I swarmed them artificially three seasons ago.

Season 1.—Nothing worthy of note occurred.

Season 2.—Was a bad one altogether with this stock, although the hive was quite full of bees, and I put a super on which the bees did not take kindly to. I turned over in my mind what I had better do, as to keep bees and not get any honey was far from profitable, especially as I kept feeding them well, early and late; but I at last resolved upon making them start afresh, so in September I made a new set of bars upon the Sherrington plan, adapting them to a fellow hive (Woodbury pattern); the bees were then in, and to try the quilt I made the bars to rest on the top of the hive. I drove, *i.e.*, brushed the bees into the hive on a fine day (exact day I do not remember, but I do not think that is important), bar by bar from the old hive which I had removed intact, and put the new one in its place. I then commenced the slow feeding process, and the bees taking to the hive kindly I was gratified to find that several bars had been worked upon in a very few days, and by the time winter had set in they had well half-filled the hive, *i.e.*, to all appearance, but as opportunities offered I fed, but a very little at a time: what was my reward?

Season 3.—In early spring I examined my hive, and was agreeably surprised to find it very nearly full both of comb and bees; and I did not relinquish the bottle until the season was far advanced, and had it not been for a casualty, I feel convinced that I should have reaped a good harvest, as it was I got about 24lbs. in my supers. The casualty was the loss of a lot of bees, enough to have made a small swarm, through not having provided a little space above the bars when I put on the adapting-board; but after making that provision, all went on as well as I could expect, with the above result, and the hive full of bees. I, at the change of the season (first week in September), took off the supers (for they were a pair), and after the bees had got quiet, I again transferred them to another hive, thereby depriving them of all their store, about 40lbs (one bar alone weighs seven pounds). I am now feeding them slowly with the bottle upon a vulcanite feeder, and they have already begun to work upon four bars.

Another lot (two small stocks joined) hived one week later than the above, are not only working well, and have several bars well worked, and the queen has a nice store of eggs, many of which are hatched at the time of my writing this. In conclusion, I will say that I deem the quilt a great preservative, not only in winter but throughout the year, when supers are not being worked, and I am now putting it on my other hives, feeling convinced that its use was the chief cause of my saving my bees through last winter. The two hives here referred to I have just examined (Oct. 2nd), and have been obliged to remove four bars of comb and food from the first, and cut away a portion of the outer bar from the second. What the reason of this irregular building is, I am at a loss to say, especially in the first hive, for I had waxed the centres of the bars as stated in the present vol. p. 25, and when they were finished they looked as if they were just the thing; but I was certainly disappointed to find that the combs were built very crooked and nearer the centre of the hive, were being carried across to the adjoining bar almost from its commencement, thereby proving that a wax-guide is not always a sure cure for crooked combs. It seemed a great pity to have to deprive the bees of so much stored food, and give them their work to do over a second time so late in the season, but it was of

course better to do it now than when the season was farther advanced, or in the spring when the combs might be taken possession of by the queen, as they were very early last spring. That the results of my depriving the bees of so much newly-made comb and stored food may be known, I have again examined both hives. In the first I find they are now building quite straight, and in the second the bees have only repaired the comb in the place where the piece was cut off, proving thereby, that by management and attention one's hives can be brought into a state of regularity and uniformity.—John H. Howard, 11 *Queen Street, Exeter.*

EXTRACTING HEATHER HONEY—AUTUMN POLLEN FEEDING.

You have never told me how to get heather honey out of the comb. At present it seems to me to be a useless article, for simple lack of means to extract. My frames are full; but I cannot get it out. It will neither sling, or run, or separate from the wax if boiled.

I have hoped to see something more about autumn pollen. It is quite useless to insist upon autumn feeding if there is no pollen to be had.—F. W.

[Note.—We do not know what to advise regarding honey which will not separate from the combs when boiled. In all similar cases which have come under our observation the wax has been found solid at the top when cold; and, unless in old combs, we cannot understand what prevents similar separation in the case named. The only way which we can think of to make such honey available is to place it where bees can get at it; keep it sprinkled with water, and extract it while liquid after they have carried it into their hives.

The principle of slow autumn and spring feeding is to keep up the breeding by continuing the incoming of honey, so that the bees shall consume some of the pollen already in the hive. Our attention was first led to its necessity by having found stocks pollen-bound in summer, through early discontinuance of breeding in autumn consequent on the removal of supers, and the lateness of its resumption in the spring through shortness of the honey supply. Slow autumn feeding restores the balance between the quantities of honey and pollen after the former has been removed, and slow spring feeding, with both syrup and pollen in the spring, keep the balance even at that time, and ensure an early supply of young bees.

Our bees have, during the ivy season, been carrying pollen as briskly as if it were May, and the colour of it reminds one of the willow and crocus.—Ed.]

DRIVING IN THE OLDEN TIME.

To a clerical friend—a most successful apiarian—I am indebted for the perusal of a quaint old book on Bee-keeping, the standard authority of one of his predecessors in the manse in the olden time. It is entitled *The Scots' Apiary, or, the Compleat Bee-Master*, 'unfolding the whole Art and Mystery of managing Bees, wherein is shewn the invaluable secret of obtaining their labours and preserving their lives, &c. &c., by James Petrie Gardiner, in the eighty-third year of his age, published in Glasgow, 1769.'

The screening from danger in the temporised artificial bower will prove amusing to the reader present at the late Caledonian Apiarian Society's Exhibition at Glasgow, when on 'our Editor' kindly undertaking to lead the manipulations, the awkward hitch occurred of their being no empty skep provided; but he, equal to the emergency, acted out the Scottish motto, 'Aye ready,' with the utmost nonchalance doffed his hat, rung up the bees therein, and capturing the queen, striking dumb with awe and admiration a group of chatting ladies standing near; and when a few of the driven ones rested on that learned caput and unprotected countenance, the nervous, outstretched, kidded hands bespoke sympathy with the daring operator more eloquent than words.

At Chap. IV. page 20, is the early dawn of driving:—

'First choose a serene, clear, sunshine day, and about nine or ten o'clock in the forenoon, when a great body of the labourers are abroad at their work, screen yourself from danger, three or four yards from the hive, with boughs of trees, leaves, and a long rod about the same length, with a little iron hook upon its further end; and when all is made safe and sure have an empty hive ready, but not so large as the full one; and two persons, one to take off very quickly the full hive, and lay the mouth of it opposite to the sun, and set the empty hive upon the old one's seat; and he that is screened from danger with his long rod must fix his hook in the side of the full scape, and move it to and fro slowly, and the labourers that are abroad come home with their loads, goes into the empty scape where the other stood, and those that come out of the full one follow those that come home with their labour with great rapidity; so that I have had as much honey in proportion as in another scape, the same weight at that time, and put down the latter end of August. And be sure to use this method for three or four years successively, which you will find to produce the purest and finest honey and wax likewise. Keep the old stocks: and for your second swarms take the weakest of them, setting the crown of the hive downmost, and another with its mouth upon it, beating upon the lowest one so that they will ascend by degrees evening and morning; and in a day or two take away the lowest, and ye have what honey was in it. This must be done betwixt the 1st and 9th of August. And as for the after-casts or their swarms, heave up your old hives about an inch, to prevent their having any, as they both weaken the old hive when they come off, and are of little service to the owner.'

The old blue apron displays considerable modesty as to his attainments in 'The Epistle Dedicatory,' describing himself, 'I am but an illiterate man; I do not pretend to a fine stile of language, only plain and easy to be understood,' and yet, for the days in which he lived, his knowledge of bee lore was not so contemptible, after all, for in the same chapter he says:—

'And whatever reflections critics may have, upon my word of honour, as a Christian, I have no sinister or self end in it but what I have acquired by much study and diligence for seventy-one years, and I am as capable (now going on eighty-three) as when I was only forty; so it is full time for me now to be plain and ingenious, not to use any tautologies and empty speculations, and observations, as the most authors I have read: such as Varo, Aristotle, and Pliny, among the ancients; and among the moderns, Mr. Butler, Mr. Gonge, my Lord Bacon, and Mr. Purchas, but above all our Scots authors—such as Reid, Millar—has had the finest penetration in the œconomy of bees that ever I read. But it is a great pity and loss to the nation that they have not hit upon the

main point, of taking the honey and preserving the lives of these noble insects.'

Modern straw-hivists, who advocate the big skep, with fixed space, would find the old Bee-Master understood much better than they the repugnance of 'these noble insects' to a vacuum, for at page 13 he teaches the removal of 'too much vacancy' by the sharp practice of the knife, 'cutting off the rolls of the scape till you come near the combs.' The book winding up with instruction as to the cultivation of 'Hopps' and 'Liquorice Root' and 'Some Remarkable Occurrences during the Author's Life.' —A Renfrewshire Bee-keeper.

HOW FAR DO BEES FLY?

During the latter part of last summer I carried about a dozen bees to a distance from home (1½ miles in a straight line), marked them with paint as they escaped. I believe not one returned home, where they were carefully watched for. Can anyone furnish reliable evidence of bees flying 1½ miles to gather money?—J. H. Eldridge, *Norwich*.

SOME OF MY FIXED IDEAS IN BEE-CULTURE.

By Count Alfonso Visconti di Saliceto.*

Far from wishing to dictate to others my ideas in bee-culture, yet I venture to make them known; not that I consider myself an authority, but because my long experience, and the many errors committed, have convinced me on several points, and have at last led me, I think, to practical and positive ideas, such as, I believe, should be cherished by every bee-keeper from the very first. Mine, therefore, are not presumptive or pedantic ideas; they are based upon the greatest simplicity, and are measured to the importance of the subject to which they refer. It is especially on this account that I hope that they will be favourably received by all interested in the subject, or, at least, that they will secure for me the credit of sincere intentions.

Bee-keeping as a Calling.—In my opinion success in bee-keeping requires, like everything else, a certain amount of natural gift or aptitude, without which it is difficult to arrive at a satisfactory result. If I am right, this gift or aptitude, as applied to the culture of the honey bee, is to be found in those who love all that relates to the animal kingdom and are eager to inquire into the secrets of nature, and who possess at the same time, in a good measure, the spirit of observation. I have oftentimes met persons wishing to start bee-keeping whom, instead of encouraging, I have tried to dissuade from so doing, and why? simply because I could not perceive in them that natural instinct which alone would have led them to success. What good would have it been to encourage their intention if nothing but failure could possibly be expected? And yet those possessing the least instinct are, generally speaking, those who will start with the greatest enthusiasm, attempting at the very earliest stage the most difficult operations; they also spend comparatively large sums in the purchase of stocks and furniture. A start is made; all seems to promise well for the time, but a few months later the want of experience begins to make itself felt, and an adverse prospect sets in; the consequence is that disappointment ensues; the undertaking is regarded as being one calculated to absorb much money: the man becomes a deserter, and speaks against apiculture for the remainder of his days.

Object.—The foremost, in fact the only, purpose which prompted me to keep bees, has ever been the hope of deriving some profit. To many of my readers and friends this brief and frank declaration may seem somewhat strange; yet why should a mystery be made of a fact? I am always ready and willing to give to amateurs all the credit to which they are entitled, for to them many a discovery is due. But, as a rule, whether it be an industry or an art, the amateur is likely to be left behind by the practical man—and bee-culture is no exception to this rule. The fancier undertakes the work in order to obey a certain impulse and a blind desire; he is neither too particular as to the expense nor as to the most rational means by which he makes his way; he wants to satisfy himself upon a given point or natural law, he cares not about the rest. In most instances there is want of perseverance, and any unexpected difficulty will turn him away from this to some other task. Here, however, many a reader will pause and say, Do I understand the writer to mean that no success is possible in any art or industry unless the person be moved by the impulse of speculation? Why should it be so? Are there no other impulses equally obvious? such as philanthropy, the giving of good example, and the like? No, both philanthropy and the giving of good example are of too much importance to be disregarded; nay, the well-to-do class should allow themselves to be moved by feelings of philanthropy to show to those less instructed the very results obtained by themselves, rather than limiting their teaching to arguments only. And in bee-keeping it just happens that the good example can be illustrated by positive results whilst studying one's own interests; and this is just the point, for very little attention will be paid by the cottager to any one professing to be philanthropically interested in his behalf, if the goodness of his doctrine cannot be confirmed by real facts. Again, he is not likely to follow the rich man, who has established his apiary regardless of expense, and without having for object the securing of profits. The cottager is anything but ignorant in matters of this kind, and it would certainly be impossible to induce him to change his old system by simply being shown an enchanting apiary, richly made, and full of those costly utensils which the bee sensation of late years has brought upon the market.

Importance, Economy, and Simplicity.—Every kind of cultivation or industry possesses its own importance, and the degree of this is sometimes determined by the locality or by the special circumstances of the individual. For instance, in countries, the honey of which has a good name on the market on account of its aroma, as is the case with Bormio, Pragelato, Chamounix, and Narbonne, bee-culture in these places has become of the greatest importance; on the other hand, where the mulberry-tree, the vine, &c., are the main objects of cultivation, bee-keeping cannot be expected to assume more than a secondary position. And as for the individual: in cases where the sale of honey, the breeding of bees, especially if coupled with the dealing in wax, implements and the like are made a vocation, for him bee-keeping will become of the greatest moment; but when the apiary is looked upon as a pastime, although some profit may occasionally be obtained for him, bee-culture will not be of more than secondary importance. Now taking the subject as a whole, and excepting certain cases, bee-culture should be made an object of secondary importance, but nothing less: hence strict attention should be given to economy, and in so far as the utensils are concerned, their merits should consist in their solidity, simplicity, and reasonable price. Of course in so far as the implements are concerned several independent considerations may exist, such as aim in view, price at which the produce can be sold, climate, and peculiarities of each individual locality.

These ideas will be found, I think, to show the plan to be pursued by all. Follow them, and the culture of bees will be found to be a genial pastime and a sure source of profit.

* Translated from the *Apicoltore*, by J. Camaschella.

BEES IN A CHURCH TOWER (CHRIST-CHURCH).

A swarm of bees took up their quarters in a hole near the top of the tower of our grand old church some years ago, and their successors have continued to reside there to the present time. One of the swarms followed the example of their relatives, and found a similar home for themselves in the tower; but others have settled down in the abbey gardens, where they have been comfortably hived by the head gardener. This choice of the bees affords a lesson for apiarians who take the trouble to provide expensive and elaborate hives for their pets, clearly showing that they can live and prosper in very primitive dwellings. The wild bees, from which so much honey is procured in America, live in hollow trees and clefts of rocks, while Egyptian bee-keepers simply make a tube of clay, about nine inches in diameter, and four feet long, (such as was exhibited at the recent Sherborne Bee Show), for the industrious little labourers to place their store of honey in.—*Western Gazette.*

THE BEE'S SERMON.

Good morning, dear friends, I'm a clever young bee,
And a sermon I'll preach if you'll listen to me:
It will not be long and it will not be dry,
And your own common sense my remarks may apply.

'Not slothful in business' must be the first head,
For with vigour we work till the sun goes to bed;
And unless one is willing to put forth one's powers,
There is no getting on in a world such as ours.

We are fond of our dwellings,—no gossips are we,
No gadders about idle neighbours to see;
And though we are forced for our honey to roam,
We come back as soon as we can to our home.

'The way to be happy, and wealthy, and wise,
Is early to rest and early to rise.'
This proverb has moulded our conduct for years
And *we* never sleep when the daylight appears.

If you were to peep in our hives you would own
That as models of *cleanliness* they might be shown;
All dust and all dirt without any delay
Are swept from our door and soon carried away.

Ventilation most thorough our domiciles share,
So no one need teach us the worth of fresh air,
For we could not live as we've heard people do
In rooms where no health-giving breeze can pass through.

When one of our number is sick or distressed
He is sure of kind treatment from each of the rest;
We sympathize warmly with those who're in grief,
And are eager to proffer immediate relief.

We carry our sting not on any pretence
For aggressive attack, but in pure self-defence;
We meddle with no one, and only repel
Assailants who will not in peace let us dwell.

The last thing I'll mention before I conclude
Is, in summer we store up for winter our food.
So, dear friends, while health and time are your own,
Prepare for a season when both will be flown.

Now my sermon is ended, and you, if you please,
Some hints may derive from us hard-working bees.
May *your* life be as useful, *your* labour as sweet,
And may you always have plenty of honey to eat.

A NEW READING OF AN OLD AUTHOR.

THE BUSY BEE.

'*How doth the little busy bee*
Improve each shining hour,
And gather honey all the day
From every opening flower.'

Well, let the busy insect prate
Of how he spends his days;
You wouldn't have me imitate
His nasty thievish ways?

He's but a robber at the best,
And steals whate'er he can—
A pretty model as a test
Of industry to man!

Suppose (for instance) I should take
'From every opening' shop,
Here sugar-plums, or there hard-bake,
Bull's-eyes, or lollipop?

The shopman I should sorely vex,
He'd cast hard looks at me,
And probably Policeman X
Would come and collar me.

He'd 'run me in,' no doubt he would,
And put me in a cell;
That little busy bee, he should
Be made to pay as well!

But what cares he for cuffs or blows,
Though you should run him in?
He's used to *whacks*, the world well knows,
And oft in 'cell' he's been.

Oh, bid me not, then, note his ways,
Or *I* shall waxy grow;
'Tis honest *industry* that pays,
Not busy *stealth*, *I* know.

Funny Folks.

Echoes from the Hives.

Somerset.—"'An Evening with the Bees," illustrated with diagrams, models, and living bees, in observatory hives, is announced as an entertainment at the village of Montacute. A Somersetshire paper recently contained the following paragraph:—"Those of our readers who live near Montacute, or who ever pass through that very pretty neighbourhood, should, if they are interested in bees and bee-keeping, obtain permission to inspect the apiary belonging to Mr. J. Hawkins, of Myrtle Cottage. He has been a bee-keeper for many years, and although he does not care to take up the "new-fangled notions" of scientific apiarians, he has adopted a number of ingenious contrivances for the purpose of enabling him to help himself to honey when he wants it, without murdering his bees. In a large old-fashioned garden, stocked after the style of our forefathers, and where vegetables and fruit grow luxuriantly, as they can only do when home-made manure is liberally used, Mr. Hawkins has about a dozen hives of various sizes and shapes. He has long tried both the collateral and the super systems, and still works them with success. This season, his honey harvest has been unusually good, and he has had large quantities of delicious nectar for sale. Like most men who have kept bees and carefully noted their interesting habits, he is enthusiastic on the subject, and is always delighted to relate his experience, or to offer advice to young beginners."'

Leominster.—'At swarming-time I meant to write and tell you the following somewhat curious incident:—Some bees from a skep on the point of swarming were very diligent in cleaning out a Woodbury hive, in which the bees had died in the spring. On taking off the top one night, to see how they were getting on, I noticed a queen-hornet, a magnificent insect, was making a nest in a place where a comb had fallen down and broken to pieces; she had already laid about a dozen eggs. I took out this (after she had bolted, you may depend); but she continued to live in the hive on the same frame. She did not make another nest, neither did she apparently inter-

fere with the bees who worked all round her, but not close up to her. On my trying one night to pour over her some scalding water, she flew out into the darkness and never returned, and in a few days the bees swarmed into the hive.'

'I have not closed the entrances yet; and do you know that the bees, during the last three or four days, have been quite as busy as in the middle of summer, and are going in and out in scores. The humming round the ivy-trees—of which I have an immense number, and in full flower—is delicious to hear. Do they make enough honey to store now, do you think, as days are short? They may do, as they were quite busy yesterday morning at 9.30. I see you are talking in your paper about advertising in the *Grocers' Journal*. I am sure something ought to be done, as I find amateurs are all crying out that they can get no sale for their honey; and it does seem absurd that we should have 10*d*. per pound offered for what was ticketed in the windows in London at 2*s*. 6*d*.'—T. J.

Sleaford.—'I have a good library on Bees, over 20 vols., and consider your Leaflets superior to any volume I have in my possession.'—T. G. B.

'I have had two coloured wrappers. Enclosed is subscription for another year. *Journal* pleases very much, and your humble servant is learning fast.'—R. G.

[It is a pleasure to know that occasionally the red wrapper is effectual as a reminder that subscriptions are in arrear. The Editor of *Gleanings in Bee Culture* (America) gives no hint of this kind, but simply stops the paper when the subscription has run out. We adopted the more courteous measure; but it does not answer, and we feel inclined to follow his lead.—Ed.]

'Enclosed herewith please find P. O. O. for Extractor, dated 19th ult., which, I am pleased to say, did its work very well. I may tell you that I was at the Bee Exhibition at the Alexandra Palace, and was much interested. The Alexandra Palace is by no means a 'comeatable' place, without the loss of a great deal of time. I should think the Westminster Winter Garden, &c. would be a more desirable place for a future Show, and ensure a much larger attendance.'—W. W.

Queries and Replies.

Query No. 183.—My queen arrived last evening, and was duly introduced to her new subjects. I have placed her majesty in a bar-frame hive, and joined to the colony the bees from a Giotto hive, as I am sure they could not have stood out the winter in that hive. Weather remaining fairly open, up to what date ought I to continue slow feeding? Will not too late feeding cause breeding to be continued into cold weather, and render chilled brood probable? A word of advice in your next *Journal* would oblige.—P. H. P.

Reply to Query No. 183.—Slow feeding may be continued as long as the weather remains open, if necessary; but feeding ought to have been completed by the middle of October. There is little probability of breeding being carried on so extensively as to render chilled brood probable. The danger is from dysentery, through too much water being imported into the hive; therefore barley-sugar should be given instead of syrup?—Ed.

Query No. 184.—Will you be so good as to answer the queries below:—(1.) Do drones consume honey, or do they live on bee-bread? If on honey (2.), ought they to be trapped and killed off as soon as the swarming season is over? Or if on bee-bread (3.), ought they to be left in the hive to cover the combs and keep the hive warm until killed off by the workers? My bees have not made as much honey as I expected. I have about 80lbs. from three last year's stocks, and five this year's swarms; but of these last only one—an artificial one—made early in June, filled a super of 20lbs., the rest simply filled their hives, which with the bees weigh now each about 42lbs. and will stand the winter. My Ligurians swarmed on May 11th, and were put into a frame-hive, but have done badly. They appeared at one time quite inclined to work in a super, but went down into the hive again, the frames of which are filled with comb; but the combs *now* are only half filled with honey. The hybrids in the frame-hive, from which the Ligurians swarmed, have done well, and filled a super of 42lbs., and are now very strong. The Ligurian swarm had an enormous quantity of drones flying about at the end of August, for which I cannot account. Did this betoken, that the queen was not impregnated, or what else?—J. H. *York.*

Reply to Query No. 184.—There can be no doubt but that drones and workers consume both honey and pollen, and in our opinion they ought not to be killed off until the bees show a disposition to get rid of them. It is of course bad policy to encourage the breeding of drones and allow them to predominate, but the matter is easily controllable by reducing the amount of drone-comb in a hive, that there need be no after-thought on the subject. Drones live all the season, unless they in the meantime have completed the purpose of their existence, and a hand-breadth of comb will yield during—say May, June, and July—at least three hatches of brood, which will come to at least 1500 drones, being a sufficient number for any hive. Drones, we think, are very much undervalued; it is quite certain that where there are none the stocks do not so well, and where there are too many, a similar state of things prevails. Some time since, in 'Mysteries,' we gave some of the causes which operate in producing drone-comb, which we consider *a matter of accident*, most seriously affecting the after condition of stocks, it is true, and calling for rectification by the bee-master. We have no doubt of their value in honey-gathering times, as stay-at-homes, to keep up the temperature, and would not advise their destruction until the bees give the hint. The presence of many drones so late in the autumn indicates queenlessness, and perhaps the presence of a fertile worker. We would recommend an examination of the hive, as in either case, if left alone, it must come to grief. Ed.

Query No. 185.—Upon examining one of our bar-frame hives some three weeks ago, we found it was queenless, and that queen-cells were being raised; now, there will be a princess, but as we have no drones about, we shall be much obliged if you will advise what to do in the matter. If you think there is a risk of our losing the hive, and that it will be best to get a queen, we shall be obliged if you will send us one. If so, will it be necessary, before introducing her, to find the princess and kill her? and if so shall we have to wait any length of time before introducing the imported one? again, would it not be best if we have to wait any length of time between killing the one and introducing the other, that you should send word, what length of time before you send the queen, as you will know much better than we how to keep her. Believing that you will do the best for me now that I have explained, I am, &c.—G. D.

Reply to Query No. 185.—As queen-cells were observed three weeks ago, and there were no drones, it is a pity that so long a time has been allowed to elapse before endeavouring to re-queen the hive, as now there is no brood in the hive and the bees are fast losing the vitality and energy so necessary for safe wintering. Queenless stocks, especially when broodless, are very difficult to manage, and we would recommend you to try with a black queen before risking a Ligurian, and then by feeding, induce breeding and afterwards introduce a Ligurian if desirable or convenient. We always find that the sooner a queen is introduced after the removal of her predecessor the more likely she will be to be accepted.—Ed.

BEES IN A CHURCH TOWER (CHRIST-CHURCH).

A swarm of bees took up their quarters in a hole near the top of the tower of our grand old church some years ago, and their successors have continued to reside there to the present time. One of the swarms followed the example of their relatives, and found a similar home for themselves in the tower: but others have settled down in the abbey gardens, where they have been comfortably hived by the head gardener. This choice of the bees affords a lesson for apiarians who take the trouble to provide expensive and elaborate hives for their pets, clearly showing that they can live and prosper in very primitive dwellings. The wild bees, from which so much honey is procured in America, live in hollow trees and clefts of rocks, while Egyptian bee-keepers simply make a tube of clay, about nine inches in diameter, and four feet long, (such as was exhibited at the recent Sherborne Bee Show), for the industrious little labourers to place their store of honey in.—*Western Gazette.*

THE BEE'S SERMON.

Good morning, dear friends, I'm a clever young bee,
And a sermon I'll preach if you'll listen to me:
It will not be long and it will not be dry,
And your own common sense my remarks may apply.

'Not slothful in business' must be the first head,
For with vigour we work till the sun goes to bed;
And unless one is willing to put forth one's powers,
There is no getting on in a world such as ours.

We are fond of our dwellings,—no gossips are we,
No gadders about idle neighbours to see;
And though we are forced for our honey to roam,
We come back as soon as we can to our home.

'The way to be happy, and wealthy, and wise,
Is early to rest and early to rise.'
This proverb has moulded our conduct for years
And *we* never sleep when the daylight appears.

If you were to peep in our hives you would own
That as models of *cleanliness* they might be shown;
All dust and all dirt without any delay
Are swept from our door and soon carried away.

Ventilation most thorough our domiciles share,
So no one need teach us the worth of fresh air,
For we could not live as we've heard people do
In rooms where no health-giving breeze can pass through.

When one of our number is sick or distressed
He is sure of kind treatment from each of the rest;
We sympathize warmly with those who're in grief,
And are eager to proffer immediate relief.

We carry our sting not on any pretence
For aggressive attack, but in pure self-defence;
We meddle with no one, and only repel
Assailants who will not in peace let us dwell.

The last thing I'll mention before I conclude
Is, in summer we store up for winter our food.
So, dear friends, while health and time are your own,
Prepare for a season when both will be flown.

Now my sermon is ended, and you, if you please,
Some hints may derive from us hard-working bees.
May *your* life be as useful, *your* labour as sweet,
And may you always have plenty of honey to eat.

A NEW READING OF AN OLD AUTHOR.

THE BUSY BEE.

'How doth the little busy bee
Improve each shining hour,
And gather honey all the day
From every opening flower.'

Well, let the busy insect prate
Of how he spends his days;
You wouldn't have me imitate
His nasty thievish ways?

He's but a robber at the best,
And steals whate'er he can—
A pretty model as a test
Of industry to man!

Suppose (for instance) I should take
'From every opening' shop,
Here sugar-plums, or there hard-bake,
Bull's-eyes, or lollipop?

The shopman I should sorely vex,
He'd cast hard looks at me,
And probably Policeman X
Would come and collar me.

He'd 'run me in,' no doubt he would,
And put me in a cell;
That little busy bee, he should
Be made to pay as well!

But what cares he for cuffs or blows,
Though you should run him in?
He's used to *whacks*, the world well knows,
And oft in 'cell' he's been.

Oh, bid me not, then, note his ways,
Or *I* shall waxy grow;
'Tis honest *industry* that pays,
Not busy *stealth*, *I* know.

Funny Folks.

Echoes from the Hives.

Somerset.—"An Evening with the Bees," illustrated with diagrams, models, and living bees, in observatory hives, is announced as an entertainment at the village of Montacute. A Somersetshire paper recently contained the following paragraph:—"Those of our readers who live near Montacute, or who ever pass through that very pretty neighbourhood, should, if they are interested in bees and bee-keeping, obtain permission to inspect the apiary belonging to Mr. J. Hawkins, of Myrtle Cottage. He has been a bee-keeper for many years, and although he does not care to take up the "new-fangled notions" of scientific apiarians, he has adopted a number of ingenious contrivances for the purpose of enabling him to help himself to honey when he wants it, without murdering his bees. In a large old-fashioned garden, stocked after the style of our forefathers, and where vegetables and fruit grow luxuriantly, as they can only do when home-made manure is liberally used, Mr. Hawkins has about a dozen hives of various sizes and shapes. He has long tried both the collateral and the super systems, and still works them with success. This season, his honey harvest has been unusually good, and he has had large quantities of delicious nectar for sale. Like most men who have kept bees and carefully noted their interesting habits, he is enthusiastic on the subject, and is always delighted to relate his experience, or to offer advice to young beginners."'

Leominster.—'At swarming-time I meant to write and tell you the following somewhat curious incident:—Some bees from a skep on the point of swarming were very diligent in cleaning out a Woodbury hive, in which the bees had died in the spring. On taking off the top one night, to see how they were getting on, I noticed a queen-hornet, a magnificent insect, was making a nest in a place where a comb had fallen down and broken to pieces; she had already laid about a dozen eggs. I took out this (after she had bolted, you may depend); but she continued to live in the hive on the same frame. She did not make another nest, neither did she apparently inter-

fere with the bees who worked all round her, but not close up to her. On my trying one night to pour over her some scalding water, she flew out into the darkness and never returned, and in a few days the bees swarmed into the hive.'

'I have not closed the entrances yet; and do you know that the bees, during the last three or four days, have been quite as busy as in the middle of summer, and are going in and out in scores. The humming round the ivy-trees—of which I have an immense number, and in full flower—is delicious to hear. Do they make enough honey to store now, do you think, as days are short? They may do, as they were quite busy yesterday morning at 9.30. I see you are talking in your paper about advertising in the *Grocers' Journal*. I am sure something ought to be done, as I find amateurs are all crying out that they can get no sale for their honey; and it does seem absurd that we should have 10*d.* per pound offered for what was ticketed in the windows in London at 2*s.* 6*d.*'—T. J.

Sleaford.—'I have a good library on Bees, over 20 vols., and consider your Leaflets superior to any volume I have in my possession.'—T. G. B.

'I have had two coloured wrappers. Enclosed is subscription for another year. *Journal* pleases very much, and your humble servant is learning fast.'—R. G.

[It is a pleasure to know that occasionally the red wrapper is effectual as a reminder that subscriptions are in arrear. The Editor of *Gleanings in Bee Culture* (America) gives no hint of this kind, but simply stops the paper when the subscription has run out. We adopted the more courteous measure; but it does not answer, and we feel inclined to follow his lead.—Ed.]

'Enclosed herewith please find P. O. O. for Extractor, dated 19th ult., which, I am pleased to say, did its work very well. I may tell you that I was at the Bee Exhibition at the Alexandra Palace, and was much interested. The Alexandra Palace is by no means a 'comeatable' place, without the loss of a great deal of time. I should think the Westminster Winter Garden, &c. would be a more desirable place for a future Show, and ensure a much larger attendance.'—W. W.

Queries and Replies.

Query No. 183.—My queen arrived last evening, and was duly introduced to her new subjects. I have placed her majesty in a bar-frame hive, and joined to the colony the bees from a Giotto hive, as I am sure they could not have stood out the winter in that hive. Weather remaining fairly open, up to what date ought I to continue slow feeding? Will not too late feeding cause breeding to be continued into cold weather, and render chilled brood probable? A word of advice in your next *Journal* would oblige.—P. H. P.

Reply to Query No. 183.—Slow feeding may be continued as long as the weather remains open, if necessary; but feeding ought to have been completed by the middle of October. There is little probability of breeding being carried on so extensively as to render chilled brood probable. The danger is from dysentery, through too much water being imported into the hive; therefore barley-sugar should be given instead of syrup?—Ed.

Query No. 184.—Will you be so good as to answer the queries below:—(1.) Do drones consume honey, or do they live on bee-bread? If on honey (2.), ought they to be trapped and killed off as soon as the swarming season is over? Or if on bee-bread (3.), ought they to be left in the hive to cover the combs and keep the hive warm until killed off by the workers? My bees have not made as much honey as I expected. I have about 80lbs. from three last year's stocks, and five this year's swarms; but of these last only one—an artificial one—made early in June, filled a super of 20lbs., the rest simply filled their hives, which with the bees weigh now each about 42lbs. and will stand the winter. My Ligurians swarmed on May 11th, and were put into a frame-hive, but have done badly. They appeared at one time quite inclined to work in a super, but went down into the hive again, the frames of which are filled with comb; but the combs *now* are only half filled with honey. The hybrids in the frame-hive, from which the Ligurians swarmed, have done well, and filled a super of 42lbs., and are now very strong. The Ligurian swarm had an enormous quantity of drones flying about at the end of August, for which I cannot account. Did this betoken, that the queen was not impregnated, or what else?—J. H. *York.*

Reply to Query No. 184.—There can be no doubt but that drones and workers consume both honey and pollen, and in our opinion they ought not to be killed off until the bees show a disposition to get rid of them. It is of course bad policy to encourage the breeding of drones and allow them to predominate, but the matter is easily controllable by reducing the amount of drone-comb in a hive, that there need be no after-thought on the subject. Drones live all the season, unless they in the meantime have completed the purpose of their existence, and a hand-breadth of comb will yield during—say May, June, and July—at least three hatches of brood, which will come to at least 1500 drones, being a sufficient number for any hive. Drones, we think, are very much undervalued; it is quite certain that where there are none the stocks do not so well, and where there are too many, a similar state of things prevails. Some time since, in 'Mysteries,' we gave some of the causes which operate in producing drone-comb, which we consider *a matter of accident*, most seriously affecting the after condition of stocks, it is true, and calling for rectification by the bee-master. We have no doubt of their value in honey-gathering times, as stay-at-homes, to keep up the temperature, and would not advise their destruction until the bees give the hint. The presence of many drones so late in the autumn indicates queenlessness, and perhaps the presence of a fertile worker. We would recommend an examination of the hive, as in either case, if left alone, it must come to grief. Ed.

Query No. 185.—Upon examining one of our bar-frame hives some three weeks ago, we found it was queenless, and that queen-cells were being raised; now, there will be a princess, but as we have no drones about, we shall be much obliged if you will advise what to do in the matter. If you think there is a risk of our losing the hive, and that it will be best to get a queen, we shall be obliged if you will send us one. If so, will it be necessary, before introducing her, to find the princess and kill her? and if so shall we have to wait any length of time before introducing the imported one? again, would it not be best if we have to wait any length of time between killing the one and introducing the other, that you should send word, what length of time before you send the queen, as you will know much better than we how to keep her. Believing that you will do the best for me now that I have explained, I am, &c.—G. D.

Reply to Query No. 185.—As queen-cells were observed three weeks ago, and there were no drones, it is a pity that so long a time has been allowed to elapse before endeavouring to re-queen the hive, as now there is no brood in the hive and the bees are fast losing the vitality and energy so necessary for safe wintering. Queenless stocks, especially when broodless, are very difficult to manage, and we would recommend you to try with a black queen before risking a Ligurian, and then by feeding, induce breeding and afterwards introduce a Ligurian if desirable or convenient. We always find that the sooner a queen is introduced after the removal of her predecessor the more likely she will be to be accepted.—Ed.

QUERY No. 156.—I have a loft which I wish to use for bees. It is situated over a coach-house, and has a sloping slate roof. Will it be too hot for the bees under this roof (the bar-frame hives would stand from 2 to 4 feet from the roof)? or what means should I adopt to protect the hives from the heat during the summer? There are three skylights in the roof, but only one small one opens: and there is a large open space looking down into the coach-house. Will this be sufficient ventilation?—CAROLUS.

REPLY TO QUERY No. 156.—A loft will do well for bees in summer, and little regard need be paid to the nature of the roof beyond outside whitewashing to prevent too much absorption of heat. It is in the winter when the most care is required, as if the wind blows against the side on which the entrances are situated it will whistle through at a rate almost sufficient 'to turn a windmill,' which will render the hive anything but comfortable. If you use the loft after this caution, be careful to make provision in the passage through the wall to the hive entrances for the escape of the draught into the loft without its being obliged to go through the hive.—ED.

QUERY No. 157.—I have three stock hives, and am in dread I will not have them long, there are so many rats about the place, and they are too wary for the snap-trap. What I ask, Sir, is, if you know any way to poison or destroy them.—E. O.

REPLY TO QUERY No. 157.—Keep a ferret or two, and throw the sweepings of their hutches in the run of the rats near the hives. Letting the ferrets visit their homes will have a powerful effect in causing the rats to migrate, as the latter cannot bear the odour of the former. Poison is dangerous.—ED.

NOTICES TO CORRESPONDENTS & INQUIRERS.

S. J., *Edmonton*.—We know no source from which bees could gather pollen during the past month, except the blossom of ivy. Pollen is used as food for young bees.

W. S., *Market Harborough*.—Several of the bees sent arrived alive, but, from general appearances, we should suggest that want of food was the cause of their imbecility. There was no appearance of dysentery, but they had rather a pinching, shrivelled look, not suggestive of disease.

C. T.—Your challenge, on p. 129, has not met with a single response.

R. SPROULE, *Velasco, Texas*.—Subscribers of 10*s*. 6*d*. per annum, in advance, receive replies per post to their queries, thus often saving much valuable time. A word in season will often save a stock, or may prevent mischief to a whole apiary. Subscribers of 6*s*. are content to wait until the end of each month for the information they require.

HONEY MARKET.—C. L., *Winchester*.—Why not try the *Grocers' Journal*? By its means advertisements would reach the *dealers* in honey. It appears to be useless to advertise in the *British Bee Journal*, as its readers are producers, whereas what is wanted is an introduction to grocers who are middlemen; and if they can be induced to see a fair profit on the introduction of honey to their customers, a market will be at once established. It is singular that, although the *Grocers' Journal* has been opened for correspondence on the subject, save and except Mr. R. Symington, no one has followed our lead, nor has there appeared a single advertisement on the subject. Is the need for a honey market a myth?

W., *Leeds*.—Any delay, or omission, postal, accidental, or otherwise, in reply to inquiries shall be cheerfully rectified, when we know of it. It is not by our default that *Journals* are not regularly delivered: sometimes it is from the illegibility of the hurried writing, and sometimes, we fear, because the 'postmen' are owners of bees.

OUR WANT AND SALE COLUMN.

No.

326 'The Bee-keeper's Magazine.' Vol. I., Nos 1, 4, 5. Vol. II., Nos. 3, 9, 10. Vol. III., Nos. 1, 2, 7. 1*s*. each, or 9 Numbers for 6*s*.

327 'The National Bee Journal.' Vol. IV., Nos. 8, 11, 12. Vol. V., No. 1. 1*s*. each, or 4 Numbers for 3*s*.

328 'Novice's Gleanings.' Vol. I., Nos. 1, 2, 3. Three Numbers for 2*s*.

330 Swiss Bar-frame Hive. Painted, 8*s*.

331 Three Rye Straw Hives, workmanship guaranteed, cane-worked, locked stitch, turned wood feeding hole, rim top and bottom. 8½ × 16. Price 10*s*. 6*d*. Berks.

335 'Journal of Horticulture,' in good preservation, April 2nd, 1874, to September 23rd, 1875, inclusive, 10*s*.

338 For Sale.—A large number of frames of pure sealed honey-comb, invaluable for giving to new swarms, price 1*s*. 6*d*. per lb. Yorkshire.

343 One Carr-Stewarton Body Box-stand, 3 octagonal supers, and wooden cover, 25*s*.

344 One Neighbour's Improved Cottage Hive, 3 glass-stands and zinc cover, used one season, 30*s*.

345 One Woodbury Hive, complete, used one season, well painted, 15*s*.

346 One Carr-Stewarton Body Box, 5*s*. 6*d*. not been used.

347 One Proctor's Patent Safety Hive, filled with healthy comb, all complete with cover and roof, 25*s*.

348 Plain Wax-sheet, per lb. 4*s*. post free.

351 Two Abbott's Cottagers' Hives, filled with combs, quite healthy, 25*s*.

352 Straw Woodbury Hive, with comb and improved top, 15*s*.

367 *British Bee Journal*. Vol. I. 20*s*.

369 Vol. III. *British Bee Journal* (unbound), 6*s*.

371 Four zinc Bee-feeders, mahogany floats. Ireland. 1*s*. each.

374 Wanted.—Stocks or swarms of English Bees. Address G. Wear, Arslaby, Whitby.

375 Finest Heather Honey, in comb or in tins. Apply to A. J. Anderson, Tullochleys Clatt, Aberdeen.

379 Fine extracted Honey 1*s*. per lb.; also small supers 1*s*. 6*d*. per lb. Sussex.

382 'The Best Management of Bees,' fully illustrated, by Samuel Bagster; also 'Practical Bee-keeping.' The two books delivered free only 4*s*.

383 'Practical Directions for the Management of Bees, to their greatest advantage, by that able author John Keys;' also 'Bees, their Habits and Treatment.' The two books cheap at 4*s*. 6*d*.

384 25 lbs. of best Super Honey in frames, also best extracted Honey in 7 lb. jars. Offers wanted.

385 Good healthy Stock of Bees, 12*s*. 6*d*.

386 Three Improved Cottage Woodbury Hives, price 17*s*. each. Well painted.

387 Honey for Sale.—130 lbs. of Pure drained Honey, at 1*s*. per lb.

388 Pure Virgin Honey-comb, in wooden and glass supers, from 5 to 30 lbs. weight. Price according to quality. S. F. Clutten, Whittingham Hall, Fressingfield, Harleston, Norfolk.

389 Wanted.—Melilot Clover Plants. H. J. Fust, Hill Cottage, Falfield, Gloucestershire.

390 Offers requested for Honey, and Heather Honey-comb. Durham.

391 For Sale.—A beautiful glass Super of finest Honey-comb, weight 7½ lbs. 11*s*. Hampshire.

392 One Abbott's Frame Bar Hive, 1875, 10 frames, double cased, &c. Never been used. Painted, three coats, with Quilt complete, but no supers, 25*s*. Middlesex. G. N. R.

393 For Sale.—A quantity of Phacelia, Borage, and Melilot Seed, in 6*d*. and 1*s*. Packets, 1*d*. extra for postage. Also a lot of strong Plants of Melilot, 1*s*. per dozen to any address, free to nearest railway station from vendor.

THE

British Bee Journal,

AND BEE-KEEPER'S ADVISER.

[No. 45. Vol. IV.] JANUARY, 1877. [Published Monthly.]

Editorial, Notices, &c.

JANUARY.

The mild weather of the last month has kept bees active; but, as in consequence of the almost continuous rain there could be no foraging and no income except that artificially given, breeding has been almost suspended, and little change has taken place in hives beyond a diminution of their stores. The only break in the rainy character of the weather occurred on the night of the 23rd ult., when a heavy fall of snow took place, which, drifting into every accessible cranny and melting almost immediately, rendered hives not thoroughly protected anything but comfortable. The snow lasted, however, for a very short period, for on Christmas morning it had nearly all disappeared, and, except where it had drifted into exposed hives, it did little harm to the bees. In all cases of visitations of snow it is not necessary to close the hive entrances, as is generally recommended; but they should be shaded, to prevent the sunshine lighting up the hive's interior, and inducing the bees to come forth, when, becoming suddenly chilled, they fall into the snow and perish. When a hive becomes wet through driving rains, snow, or any other causes, care should be taken to dry it as quickly as possible, at the same time exchanging the wet floor-board for a dry one. Hives should be often 'searched' with a hooked wire, passing it gently round the hive close to the floor-board, to bring forth any dead bees, or *débris* that may be lying thereon, and which a continuation of cold and damp weather may have prevented the bees removing. Such dead bees or *débris*, if allowed to remain in the hive, quickly become mouldy, and mouldiness will spread in a hive like dry rot in a dwelling-house, rendering it unwholesome, and encouraging disease. While snow is on the ground, an opportunity offers for the extermination of those unsightly pests the earwigs, which will be found congregated under the coverings and close to the crown of the hives, for by removing the coverings and brushing them into the snow, they will be destroyed. Traps should be set for those destructive bee-pests, tom-tits, which devour bees wholesale, the artfulness with which they pick out the stings and deposit them on their perch before swallowing the delicious morsel being really interesting, and, were they not so hurtful in apiaries, would be quite amusing. Queen-wasps may often be found in hiding amongst the coverings of the hives, and should always be crushed, unless required for experiment. Spiders also should be treated as enemies and destroyed.

Feeding.—Should any bees require feeding, syrup should be given sparingly, lest by giving too much watery food, dysentery should be caused. Barley sugar is the best food that can be given to bees during cold weather, but it should be given in small quantities, or it may liquefy more rapidly than the bees can take it, and run down into the hive, wetting the combs, and rendering them unfit for occupation by the bees.

PROVINCIAL ASSOCIATIONS:

An Exhibition Tent a Great Necessity.

A correspondent and most energetic bee-keeper expresses a hope, in another column, that the little exhibition tent we have proposed—to enable visitors to our apiary to view the manipulations in perfect safety—will be sufficiently commodious to be used at provincial meetings. But as that by our arrangements will be impossible, and as the providing of a tent is of recognised importance, and as the British Bee-keepers' Association appear to be unable to produce such a desirable means of affiliating the associations in the provinces to itself as a centre, we take leave to suggest a means by which the difficulty may be overcome and a tent secured which shall be at the service of every association contributing in the order in which their exhibitions may be arranged.

We do not ask that such associations shall be affiliated to our 'School of Apiculture,' or that *it* shall be constituted the head-centre of the science: but holding with our juniors the position of recognised experts, and having already had several applications to conduct exhibitions of manipulation in the provinces during the summer of 1877, where the want

of tent accommodation is the great stumbling-block, through the expense of providing one by each association, we hope we may be excused if we raise our cap on the point of our pen, and volunteer to head the forlorn hope. A tent *must* be obtained, and we ask secretaries of bee-keepers' associations, and others with sufficient confidence, to join us and make a dash for it. Our invite, indeed, extends beyond the heads of existing associations, and aims at embracing the many who would like to make a bee exhibition an additional attraction to a flower show, or in any other way to enlighten the rustic mind on the ways and means of performing the operations 'one reads of,' but does not believe to be possible.

We propose to incur the total cost of a tent, having a frontage of 20 feet, a large enclosed area, and all the necessary appliances for an exhibition—save and except the bees—conditionally as follows, viz. :—

That it be engaged during the ensuing summer, with one manipulator and an assistant, for at least twelve one-day exhibitions, at a total charge of three guineas and the costs of conveyance, the *fare* to be calculated at third-class rate ; and,

That for distances or exhibitions occupying more than one day, an additional sum of one guinea per day shall be paid.

This will bring the cost of an exhibition of manipulation within the compass of any committee, large or small, desirous of promoting bee culture, as a small charge for admission will at least render the experiment costless, and may pay handsomely.

The costs of carriage will be much reduced where the tent-poles and boards are provided at the place of exhibition, and where conveyance to the ground is provided, and one railway fare will be saved where local help is volunteered.

All we now ask is, that during the present month engagements may, as far as practicable, be made that we may publish them in the February *Journal*, to prevent clashing later on, and that we may have a reasonable assurance of the necessary support in our undertaking.

ABBOTT'S STANDARD HIVE.

The question of a standard frame having been so long before the bee-keeping public, and the British Bee-keepers' Association having taken no action in the matter, we think that another year should not be allowed to pass away without some determination having been arrived at ; and our hive having stood the test of three years' trial by the public with impunity, and having at almost every exhibition during the past two years been awarded the *highest honours*, being also the hive which it most pleases hive inventors to imitate, we, the British Bee-keepers' Association having made no sign, have deemed that it with all its parts may fairly be considered the Standard.

With due modesty we respectfully suggest that, until the advent of the *British Bee Journal*, the hive of the late Mr. Woodbury was the accepted Standard for England, and during our initiation into the mysteries of bee-culture under that great master, sitting, as it were, at his feet and receiving the instructions we could gain from no other source, we were fain to believe that the Woodbury hive was as perfect as a hive could be, and that the evils which were found in it were common to hives generally, but were comparatively unknown simply because others were incapable of being invaded. Time passing brought us into contact, personally and otherwise, with numerous other bee-keepers of the advanced school, and comparison of experiments soon pointed out the defects in the Woodbury hive, and led to a vast number of experiments, expensive and otherwise, to enable us to eliminate them.

Among the chief improvements on the Woodbury hive which we have been the means of effecting during our 'brief hour upon the stage,' may be mentioned the quadrupedal legs permitting the sliding reversible floor-board, the moveable porch, the taper frames, the shouldered top-bars, the moveable dummies (now resolved into moveable hive sides), without some modification of which no hive can be considered perfect, the double sides and dead air spaces in lieu of the loose outer cover or casing, the correct adjustment of the spaces at the ends of and under the frames, the abolishment of space above them, and, crowning triumph of all, the introduction of the quilt as a covering, and the abandonment of the abominable crown-board. These are the leading features which will be found commendable in our hive ; and proportionately as other *inventors* adopt or adapt them, making them dovetail as it were with their own ideas of what a hive should be, so do their productions meet with commendation or otherwise. In outward appearance no alteration has been made in the Standard hive since it was awarded first prize and the silver medal at the great Crystal Palace Exhibition in 1875, and only such variation has been made in its interior as experience has warranted in our closer striving for perfection.

In our hive of 1874, the widened shoulders to frames and the moveable dummies were first exhibited, but so little had the public been educated in hive science, that it was not noticed by the Judges, and consequently in that of 1875 the widened shoulders were dispensed with, and

the ends of the top bars, cut to mitre points, were locked into their places by serrated racks which moved on hinges and when closed ren-

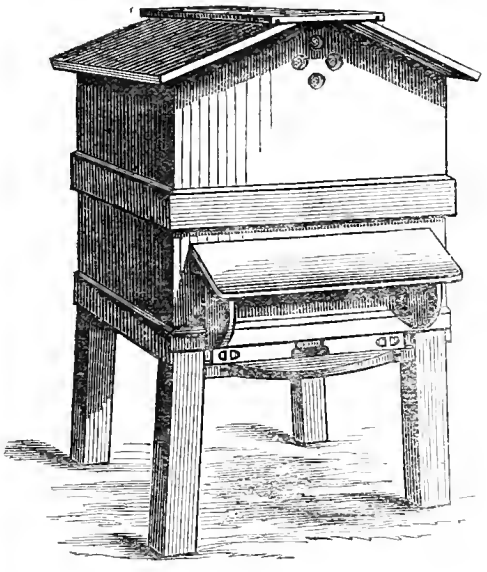


Fig. 1.

dered both lateral and longitudinal movement of the frames almost impossible, but the narrowness of the bearing of the frame-bars (1 inch) permitted the frames to swing either way when the hive was being moved from place to place, and this we considered a defect for which a remedy was demanded. Therefore, in the hive for 1876 we endeavoured to give the top bars of the frames as great a width of bearing space as is possible, and widened the ends of the frames on opposite sides, as shown in fig. 2,

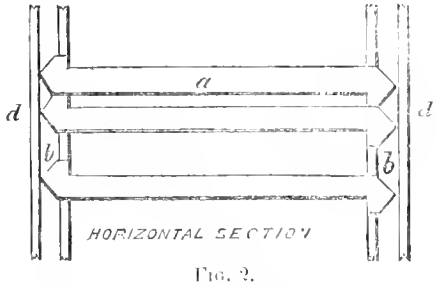


Fig. 2.

thereby practically giving them each a base of *two inches* which effectually prevents rocking of the combs, except under VERY extraordinary conditions. By reference to fig. 3, it will be seen that the top bars of the frames rest on narrow *runners*, so called because they (the frames) may be *slid* along them, it will also appear that the runners, being narrow, offer little opportunity for crushing bees; and here we must point out a serious defect in many hives.

It has been urged, with more bombast than truth, that *zinc runners* prevent the crushing of bees, and propolization by them; but in the first instance we see little difference between crushing a bee on a $\frac{1}{4}$-inch plane surface, and

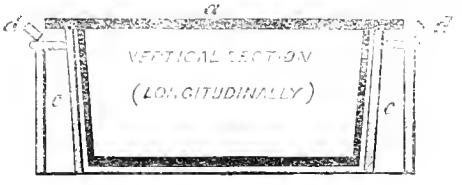


Fig. 3.

cutting it in half on a knife edge such as the zinc presents, except on the score of cruelty, in which case the *crushing* is the more merciful. But it happens that between the said 'runners' and the outer cases *a*, fig. 2 and 3, there are vacancies, as will appear under the ends of the frames, as at *b*, in fig. 2, more plainly seen in fig. 3; and it will be well to note that in all hives which have not the widened ends as in fig. 2 (or some modification of them) resting on *the runners*, the channel *b* affords the most easy and direct means for the escape of the heat from the bees clustering in such hives; and when the said runners are made of zinc their conductivity of heat, and the probability of dysentery in winter, are greatly increased.*

In our hive of 1875, an improvement in the dummy was made that gave greater economy of space in the hive's interior, whereby, instead of a removeable block or dummy frame, a means was applied, whereby the inner side of the hive, by a slight mechanical arrangement, fell outward against the outer side of the hive, and gave the lateral space required for the easy removal of the combs, as in B, fig. 4.

In practice, this arrangement afforded opportunity for the bees to get between the inner and the outer cases of the hive; and although provision was made for their emancipation, we deemed it would be better to prevent the possibility of their self-imprisonment, and therefore the hive of '76 offers no means by which they can thus immolate themselves.

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* In hives of the 'Cheshire' class these causes of objections are rampant: the runners are of zinc, the frames are kept apart by wire-pins, which permit the bees to get on both sides of them (the runners) and propolization can go on to any extent, since the frame ends instead of being pointed, both square against the outside case of the hive (*d*, fig. 2).

It is a great mistake to suppose that zinc-runners *prevent* propolization. Bees *will* propolize internal angles, and those on either side of a zinc-runner will, as a rule, be so treated. The only convenience resulting from the use of zinc for runners is in its being so thin as to offer little resistance to the sliding of the frames on its knife edges; but metal in such a position is undoubtedly objectionable, and zinc, especially expanding and contracting irregularly, soon becomes puckered between the nails that hold it to the hive, causing a larger amount of propolis to be used in the vacancies.

Instead of the locking-bar, A, fig. 4, in the hive '75, as a means of steadying the frames,

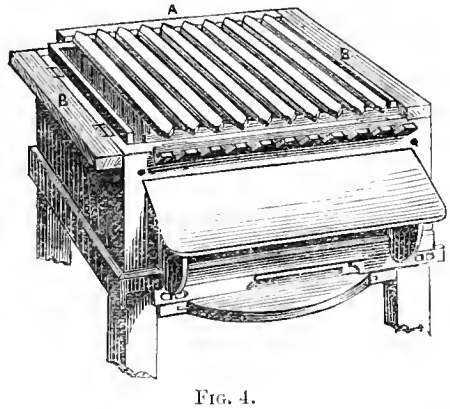

Fig. 4.

the frames, as before mentioned, fig. 2, have widened shoulders, which ensure the greatest steadiness at the least possible cost, and it has, therefore, been dispensed with, and in lieu a plain strip has been hinged to the back and front of the hive to enclose the frame ends, and protect those parts from outdoor insects. Thus, the ends of the frames are always clean, and free from propolis, and may be handled without soiling the fingers, while the bees are confined to the inside of the hive, and the loss of heat consequent on the open channel B, fig. 2, prevented.

The hive measures inside 17 inches from front to rear at the top, and $16\frac{1}{4}$ at the bottom, 15 inches from side to side, and is $10\frac{1}{2}$ inches deep. The *outside* dimensions of the frames, which is the important feature governing their interchangeability, are from top to bottom $10\frac{1}{4}$ and from end to end, at top $16\frac{1}{2}$ inches and at bottom $15\frac{3}{4}$ inches. The top bars are half an inch thick, the ends are about $\frac{5}{16}$ inch, and the bottom rails are of the slightest possible. The super cover and roof are of sufficient capacity to hold any ordinary number of supers, which, in these days of sectionals, are not likely to become a tall pile. It stands on four stout spreading legs, which run up and form the corner fixings for the walls of the hive and give great strength to the whole; the floor-board is reversible, and is wedged up by two wedges only, one at the back and the other at the front. The advantage of being able to lower the floor-board evenly at back and front will be evident when the question of ventilation is considered and the necessity which often occurs of giving entrance at the back as well as the front of the hive. In hives in which the floor-boards fit closely at the back, the double entry is impossible, and when let down in front for ventilation, the bees use a large quantity of propolis to fill up the acute angles thereby formed. The hive as usually made contains ten frames, but can be made to hold any number, so that it may be used as a collateral hive The floor-board can be pierced and a box fitted *under*, so that the method of nadiring, so successfully carried out by the late Mr. Pagden, can be adopted. If storifying be the object, supers of the same size as the hive can be fitted to it, and piled to any height, the roof being made to fit over them and keep all dry. No hive can be better adapted for storifying as the main breeding apartment is of slightly greater capacity than a bushel: and it is pretty generally agreed that no hive should contain less except where obtaining honey is not the object.

The Standard Hive took first prize at *Glasgow*, 1875; first prize and silver medal *Crystal Palace*, 1875; one pound and certificate at *Weston-super-Mare*, 1876; first prize at *Wolverhampton*, 1876; first prize at *Sherborne*, 1876; first prize at the *Caledonian Apiarian Society*, 1876; first prize at *Grantham*, 1876; first prize at *Worcester*, and received the highest award at the *Alexandra Palace Show*, 1876, as the best hive for two consecutive years.

The hive is intended to be used with a quilt, which will be included in its cost, and will consist of ticking and house-flannel, materials which can be easily cleansed or renewed. The price of the hive, exclusive of supers, will be 30s. unpainted.

A second quality of hive, to take similar frames, will be manufactured at the lowest possible cost for makeshift purposes, and for the use of those who do not care for the conveniences to be found in the Standard. The frames will be of its exact pattern, so that they shall be interchangeable with all others. The hive will be single walled, of unplaned material, will contain ten frames and one dummy, and will be furnished with quilt, floor-board, and roof, at a cost not exceeding 10*s.* 6*d.*

A third quality, for cottagers' use, consisting of body box, floor-board, simple roof, and eight interchangeable frames, will be provided at a cost of 8*s.*

A fourth quality, consisting simply of a body box and eight interchangeable frames, will be provided for those who prefer to furnish the *et ceteras* for themselves, at a cost of 4*s.* 6*d.*

We would remind our readers that all the frames in our hives will be furnished with correct distance guides, and will have a waxen line along the centre of the underside of each top bar, to ensure, as far as is possible, the building of straight combs, without additional charge.

HOOKER'S 'ALEXANDRA HIVE.'

I send you, as requested, photograph of my 'Alexandra Hive' with a few explanatory notes. I have frequently heard it remarked by amateurs that the hives which were awarded prizes by the British Bee-

keepers' Association at the Crystal Palace were only suited to scientific or advanced bee-masters, and that the novice or timid bee-keeper could see nothing of the working of the bees unless he took off the crown-board and lifted out the frames—a work requiring some courage, and, unless armed with bee-dress, gloves, and smoker, some danger also to those unaccustomed to handle frames, and one which should not be too frequently done, as it is unwise to disturb the bees during the honey-gathering, or at any time more than is absolutely necessary. It is not difficult,

therefore, to understand why the Cottage hives of Neighbour, Marriott, and others, with their windows, bell-glasses, &c., have been preferred to the prize bar-frame hives above mentioned. So far, then, the timid bee-keeper has in a great measure been precluded the use of the bar-frame hive. I have endeavoured in my Alexandra Hive to keep in view the wants of the beginner, as well as those of the practical bee-master, providing to the former a far greater opportunity (than in the Cottage hives) of observation through the three large windows, exposing a whole frame on either side, and the ends of all the frames; so that by opening the windows shutter the bees can be seen at work, and to some extent the condition of the hive may be ascertained without exciting the anger of the bees or alarming them with smoke. To the advanced bee-keeper this hive affords an opportunity of removing and examining the frames, and strengthening with frames of ripe broods from other hives on either side without removing the supers should the bees be at work in them. Neither the Abbott nor Cheshire Prize Hives will admit of examination of the frames without first removing the super. When supers are not in use this hive can be manipulated from the top in the same manner as the prize hives of former years, the glass window being made to act as dummies to give lateral space for the withdrawal of the full frames. The hive is made to take the Woodbury size frames, but can as easily be made to suit any size in use. The usual number of frames is ten, but this number can be increased to suit the ideas of the bee-master. For supering, a skeleton wood frame, with a piece of $\frac{5}{16}$ perforated zinc nailed on its underside, is used, instead of an adapting-board, on which are placed fourteen sectional supers; a quarter inch space is left between the zinc and the supers so that the bees can pass under to any section, let them come from what part of the hive they may. There is a small locker under the hive, thus giving a double thickness at bottom as well. I think there is nothing more that requires explanation—the wood-cut will explain itself.

The price of the hive in the catalogue was 50*s*., but I find I can get them made so that they can be sold at 45*s*. The hives can be had of all hive-dealers, each hive having a plate stamped 'Alexandra Prize Hive.' The price may appear high compared with the so-called cheap hives, which, to my mind, are dear at a gift, and from the frail and uneven-sized frames and thin material, frames bending down sticking to the floor-boards, and pulling to pieces when an attempt is made to lift them, and combs falling out. These cheap hives have done much to disgust many in their first use of bar-frame hives. Hives properly made will last half a century.—J. M. Hooker, *Sevenoaks, Kent.*

THE GRIFFIN HIVE.

This hive, as exhibited at the late Bee Show at the Alexandra Palace, Class II., No. 5, where it obtained the award of high commendation, and previously at the Exhibition of the Devon

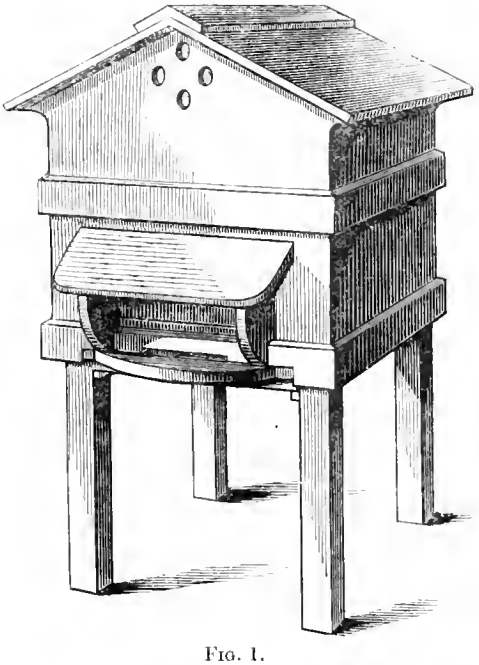

Fig. 1.

and Exeter Bee-keepers' Association, where it gained the first prize and first-class certificate, is the invention of Wm. N. Griffin, of Rock House, Alphington, Exeter, Hon. Sec. of this last-named local Society.

This hive in itself combines most of the

modern improvements in bar-frame hives, together with some special advantages claimed by the inventor. It is of wood, having double walls all round, with dead air space between, and at present contains nine rectangular frames, which are flush with the sides of the hive. It is proposed, however, to construct the hive to be capable of carrying ten frames, the room of one of which is to be, or may be, occupied by a dummy.

Fig. 1 represents a front view of the hive, with stand, cover, roof, floor-board, and porch complete, and showing the entrance with the simple arrangement by which it can be enlarged, contracted, or closed entirely. One of its most prominent features is the revolving-rack, which, while possessing all the advantages of the fixed rack, does away with the acknowledged evils of the old notched rabbets. When manipulating the frames, they may be quickly, and somewhat carelessly, returned to the hive, when, by a half-turn of the handles of the racks, they are all immediately adjusted in their exact positions and correct distances from each other; and by raising the handles all the frames are at once set at liberty.

Fig. 2 will show that the sides of the teeth are mitred, so that there is no possibility of a

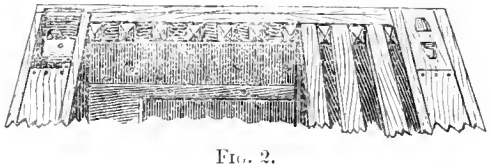

Fig. 2.

single bee being crushed, nor of the frames being cemented to the rack with propolis. The racks work behind zinc runners, or ledges, on which the frames rest; are moved by a handle at each end, which work in boxes in part of the dead-air space, and which, when not in use, are covered by shutters.

The legs of the hive run up inside its corners, thus affording the greatest stability for the hive walls. The runners for the shifting floor-board, being fixed immediately under the inner walls, are sloped upwards towards the back of the hive; so that by this arrangement only one wedge is required for pushing up and retaining the floor-board in place. This latter is, of course, clamped at the sides to prevent warping.

The entrance may be contracted to almost any extent, or, if necessary, closed altogether, by means of slides of zinc, having apertures of various sizes working behind the moulding. The alighting-board is sheltered by a porch, with close sides, which is moveable, resting on two brass brackets, effectually protecting the bees from wind and rain.

In the back of the hive is a window, 9 inches long and 5 inches high, having double glass, with dead-air space between, and covered on the outside with a shutter.

There is no crown-board, as the hive is intended to be worked with a quilt. This consists of a piece of loose ticking-cloth, matting, or smooth calico, hemmed at the edges, to prevent fraying. Over this are several thicknesses of house-flannel; and this covering, while fitting close on the frames and affording sufficient warmth, admits of perfect ventilation during the winter months. The roof is well ventilated by four holes at each end, protected on the inside by perforated zinc, thereby allowing the escape of any vapours arising from the bees, and assisting in keeping the hive cool in hot weather. Sufficient space is allowed beneath the roof for any kind of super which may be preferred; but it is intended to work a set of fourteen sectional supers, each 9 inches long by 5 inches deep.

The adapter can be either of wood, with the usual longitudinal slits, or of zinc, perforated with holes of suitable diameter, which possesses the advantage of admitting worker-bees only to the supers. This can either be placed down on the bars, or raised $\frac{3}{8}$ inch by a moveable frame of the same diameter as the top of the hive, provided for the purpose.

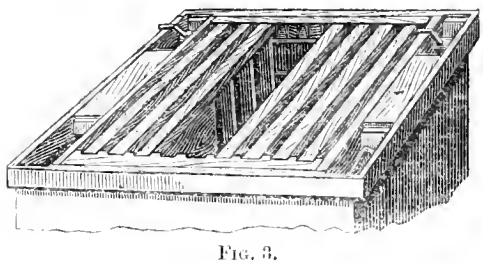

Fig. 3.

Fig. 3 gives an interior view of the hive, the two centre frames being removed to show the racks.

The interior dimensions of the brood-chamber are $16\frac{1}{4}$ inches from front to rear, $13\frac{1}{4}$ inches from side to side, and $9\frac{1}{2}$ inches deep; giving a capacity of 2045 cubic inches. The outside measure of the brood-chamber is $21\frac{1}{8}$ inches in length, by 18 inches in width. The height of the hive is 3 feet $3\frac{1}{2}$ inches.

The frames: the top bar, outside measure, is $17\frac{1}{2}$ inches long; the bottom bar, $15\frac{1}{2}$ inches; the ends, $9\frac{1}{8}$ inches in depth; all $\frac{7}{8}$ inch wide. The distance from each other is $\frac{9}{16}$ inch, from centre to centre of frame $1\frac{7}{16}$ inch.

The hive, as at present manufactured, complete, with quilt, with wooden or perforated zinc adapter, thoroughly well made of seasoned wood, and painted, can be obtained of the inventor at the reasonable price of 2*l.* 4*s.* 6*d.* Set of sectional supers, 2*s.* 6*d.* extra.

Fig. 2 represents the interior of the hive (three frames being removed), to show the manner in which the racks adjust them.

EVANS'S POEM ON BEES.

In deference to the expressed wish of our esteemed correspondent, 'A Renfrewshire Bee-keeper,' we beg to say that we shall be willing to publish the above work in a separate form when a sufficient number of copies are subscribed for to prevent loss by the transaction. In our next we will state the cost of the work, and leave bee-keepers to decide the question of its reproduction. In the mean time we shall be glad of any hints on the subject from those who feel an interest therein, as to the style of binding and the size the book should be. It has occurred to us that perhaps it would be the best course for us to issue it in paper covers, so that each subscriber might get it bound for himself after his own fancy.

DE FEMININ' MONARKI'

OR DE HISTORI' OF BE'S.

By the kindness of an eminent firm of London publishers, a copy of this remarkable and scarce work has fallen into our hands. It is the production of the Rev. Charles Butler (1559–1647), a native of High Wycombe, Buckinghamshire. This extraordinary man entered Magdalen Hall, Oxford, in 1579, and filled the office of Vicar of Lawrence Wootton, Hampshire, from about the year 1600 until his death. The first edition of this work, under the title of '*Feminine Monarchie*, or the History of Bees, and the Due Ordering of them,' was published at Oxford in 1609. There is a translation of it in Latin by Richardson, under the title of *Monarchia Feminina, sive Apium Historia.* Lond. 1673. (See Donaldson's *Agricult. Biog.*) Our copy is the 1623 edition; it wants two leaves—the title and the conclusion of preface. It is printed in phonetic characters, the first work, we believe, so printed in the English language. Besides the author's apicultural pursuits, he appears to have been equally successful in his cultivation of music. His work on the *Principles of Music* was also printed in phonetic characters, and Dr. Burney says of it :—

'It contains more knowledge of music in a small compass than any other of the kind in our language; but the Saxon and new characters he uses, in order to explode such characters as are redundant, or of uncertain powers, render this musical tract somewhat difficult to peruse.'

The work on bees abounds in evidences of a very considerable knowledge of bees on the part of the author, and the quaintness of the language adds a zest to the enjoyment experienced on finding so much that in the present day is thought modern, well known 250 years ago. Mr. Pettigrew thinks his father was the originator of the practice of driving: hear what our author says, and mark how he says it!—

'An oder way to tak' de coms is by driving de bee's. De manner of it is dis. At mid-summer or witin two or tree days after, in a fair morning an hour befor' sun-rising, lift de stall from de stool; and set it upright and fast on de ground on a brak, wid the bottom upward: and qikly coover it wit an empty hiv'; having first laid two spleet's upon de full hiv's bottom, dat de empty hiv' may stand de faster. Den wrapping a mantle round about de eine or meeting of bot' de hiv's, and binding it fast wit a small cord aboov' and beneth', that a bee' may not get foort': clap de full hiv' or *Remoover* round about a good many tim's (pausing now and den a little between') dat de bee's may ascend into the void hiv'. And wen you tink dat most' of dem ar' driven up (wic wil be about half an hour after) set de upper hiv' or *Receiver* upon de old' stool':' &c. &c.

His remarks about 'feeding' embrace nearly everything known at the present time, except in regard to the manner of giving the food.

BEES AT THE INTERNATIONAL HORTICULTURAL EXHIBITION AT CARLISLE.

We understand that an endeavour is being made by John Wilkie, Esq., of Gouroch, Hon. Sec. of the Caledonian Bee-keepers' Association, to induce the Committee of the Scotch Horticultural Association to include the products of apiculture with those of the sister sciences in their proposed exhibition at Carlisle during the current year; and judging from the splendid success which attended the 'tacking on' of a bee and honey show at the Association's late meeting at Dundee, we think, and hope, the project will be entertained. The object is, we believe, to make the occasion a grand one for the whole of Scotland; and, with this view, all other Associations beyond the border have been invited to co-operate. Some of the Associations on this side the Tweed might profit by the energy shown by our Scotch friends, if they could only be induced to wake up.

BEE-CULTURE.

We have been favoured by the Hon. and Rev. C. Fielding with the following, cut from the *Oswestry Advertiser*, and while thanking him for his encouraging opinion of our efforts, commend his method of advancing bee-culture to all who have the principle at heart. Nothing save practical exhibitions of bee-manipulation is more likely to promote the science than the discussion of the subject in local newspapers; and we, in behalf of bee-keepers generally, here tender our best thanks to the numerous editors

who, by opening their columns, have benefited us all round.—Ed. *B. B. J.*

Sir,—The Shropshire Floral and Horticultural Society have offered to give encouragement to a better style of bee-culture by prizes and by exhibition of bee-management at their next annual show, if support be given them, by the formation of an affiliated Bee-keeping Association.

Might I ask any who would assist in starting this, and would consent to an annual subscription of 5*s.*, kindly to communicate with me?

Bee-culture is a science, like farming, and is one which amply repays the attention bestowed upon it. The *British Bee Journal*, which is the ablest treatise upon it, and which is issued monthly, gives in its last number an example of what may be done, and I believe this is even exceeded. The editor says that the Rev. G. Raynor began this year with fourteen hives, and closes the season with thirty-six strong stocks, well provisioned for the winter, after having gathered a harvest of 1423 lbs. of honey-comb and honey. This, at an average price of a shilling per pound, would bring 71*l.* 3*s.* But this result has only been obtained by careful and thoughtful management, and by the assistance of that new and most valuable invention, the honey slinger, a machine by which honey is slung, by centrifugal force, out of the comb and the comb returned.

Why should not our intelligent labouring men be encouraged to study the art? Many think that 'bees always sting them.' I think that this is very often a mistake, but anyhow there are various methods of protection and various ways of quieting bees, and various admirable cures for stings.

The present barbarous way of 'putting down hives' with brimstone cannot be too highly condemned, both on account of its cruelty and its unthriftiness, and it is time that people were taught better.

I hope many of your readers will give this new Shropshire Bee-keeping Association their support.

Should any wish to know something more of the art let me recommend them to take in the *British Bee Journal*, which may be got for 6*d.* a number from the editor, Mr. C. N. Abbott, Bee-master, School of Apiculture, Fairlawn, Southall, London. Where a club or association is formed, the members are supplied with the Journal at 4*d.*—C. Feilding, *Stapleton Rectory, Shrewsbury, Dec.* 11.

THE AGRICULTURAL COLLEGE APIARY.

Report for the Year 1876.

[*From forthcoming Report of the Michigan State Board of Agriculture.*]

Of the ten colonies of bees placed in the new cellar November 26th, all but one, the experimental colony, with none but old bees, came through the winter in fine condition. That one lived till spring, and then died. These colonies were all removed from the cellar once in January, and once in March, that they might have a purifying flight. They were not removed to the summer stands permanently till the middle of April.

During the previous autumn the bees were kept breeding even into October, and consumed nearly all the pollen. Several colonies had none. These had no brood when removed from the cellar. I attempted to supply this lack by feeding meal during the last of April, but found that nearly as soon as the weather would permit the bees to fly they could get pollen, and thus would not touch the meal.

I fed sparingly of syrup till the fruit trees were in bloom, and by that time had six or seven frames of brood in each hive. I also fed a little between the fruit trees' bloom and that of white clover, with the most satisfactory results.

During the season I have increased from nine to twenty colonies, all large and in excellent condition. I also procured two Italian queens imported from Italy, but lost one in introducing. The other has done well, and from her I have Italianised the whole apiary, though I am in doubt whether all the queens were purely mated.

I did not permit the colonies to swarm, but practised artificial swarming or dividing. I lost three colonies, one coming out in the spring, and leaving at once, without waiting to alight even; the other two going off this fall, before I suspected any such thing, choosing Sunday of course as the time for their leave-taking. Had I previously cropped the queen's wings, all of these would have been saved. I have now no queens with uncropped wings.

I have extracted during the season 507 pounds from the brood chamber. About a third of this was from basswood, the other two-thirds from fall bloom, and none was extracted except from worker-comb, which it was desired to keep free from the honey that it might be used for brood.

During the season I have worked for comb-honey, both in boxes and small frames, and found that I could secure much more in the frames. I find, too, that the honey in small frames is liked quite as well by consumers.

In the spring I surrounded the apiary grounds with numerous honey-producing shrubs and trees, among which were basswoods, locusts, crab-apple, shad-bush, &c. Most of these have done well,—a few have died. These have been kept mulched, and the ground about them well spaded all the season. I have also set out more evergreens, some for a wind-break, others for shade for bees; and have started some Concord grape-vines and Virginia creeper for shade. Some of the latter has been set about the house, that it may climb upon it, and has already made a fine growth. I have also set out several kinds of bee-plants of more or less repute, the following of which have done well, and all yielded bloom except the two first, which will not bloom till another season: yellow trefoil clover, yellow Bokhara clover, mignonette, black mustard, Chinese mustard, borage, common and silver-leaf buckwheat, common and Chinese sun-flower, and Rocky Mountain bee-plant.

The following is the summary of the account with the apiary for the year:—

Apiary.	Dr.
To improvement of grounds	$26 17
To experimental plats	23 65
To tools	20 45
To making hives, feed, queens, and care of bees	84 81
Total	$155 08

	Cr.
By 11 colonies of bees at $10	$110 00
By 506½ lbs. extracted honey at 16 @ 22 c.	83 19
By 148½ lbs. comb honey at 22½ c.	33 90
By 160 lbs. comb honey (unsold) at 20 c.	33 60
By 55½ lbs. extracted honey (unsold) at 15 c.	8 32
By 60 frames worker comb at 10 c.	6 00
By 9 unoccupied bee hives at $2	18 00
By improved grounds	26 17
By experiments on bee plants	23 65
By 70 lbs. asparagus at 8 c.	5 60
By tools, record books, &c.	15 45
By work bench	5 60
By lumber, oil, and paint on hand	2 33
Total receipts	$371 41
Total expenditure	$155 08
Net profits on 9 colonies	$216 33
Net profits per colony	24 05

Conclusions from Year's Work.—The experimental hive, strong in old bees, but which contained no young bees, as no brood was permitted to hatch after the

middle of August, and which died in early spring, indicates that spring dwindling may come from the fact that there are no young bees in the hive when the bees go into winter quarters. This condition may arise either from a poor queen, a poor honey yield, or dearth of honey in autumn, when even the best queen will refuse to do duty; or, as has been the case here this fall, such a great honey yield as to give the queen no opportunity.

Natural Swarming.—I have proved, what reason and a knowledge of the natural history of the honey-bee would discover, that natural swarming is always suffered at a great sacrifice. This insures a queenless colony for nearly or generally quite two weeks, which is equivalent to the loss of a fair colony of bees, as a good fertile young queen will start a fair colony in this time, especially as this is generally at the time of the best honey season of all the year.

The Extractor.—The great value of this machine has been again demonstrated during the wondrous honey yield of August and September. Although the bees had plenty of room in the supers—both boxes and frames, still they would fill up the brood space as fast as the bees came forth, so as utterly to preclude breeding. By extracting I kept the brood chamber replete with brood, while by omitting the same, breeding stopped entirely. I found, too, that this sent the queen into the supers, where she would lay if there was a possible chance; whereas she remained below entirely when room was given her in the brood-chamber.

Pollen a requisite to Brood-rearing.—The fact that there was no brood reared in colonies destitute of pollen till the bees had gathered and stored some, seems a positive demonstration that pollen is an essential element of the food of the larvæ, though it is not required by the mature bees. The rapid increase of brood in the spring would also indicate that it is as well, if not best, that the bees have no pollen till they can fly out in the spring.

Feeding Meal.—Observations during the past spring, sustained also by those of 1874, show that bees are pretty apt to be able to gather pollen as soon as it is best for them to fly in the spring,—by the middle of April, and that feeding meal is unnecessary.

Evergreens for Shade.—Evergreens for shading the colonies, especially Norway spruce, not only serve an excellent purpose, but can be trimmed so as to make the apiary grounds very attractive from beauty, and are to be strongly recommended.

Sawdust about the Hives.—The sawdust about the hives, underlaid with brick, by keeping the grass down serves an excellent purpose, as it enables one to see at once any bees that fall upon it, and thus ensures against loss of queen.

Late Fall Feeding.—As all the bees wintered so well during the past winter, I could see no special difference between those fed late the previous fall and those that were not. All bred so late as to vitiate the experiment.

Honey-Plants.—The experience of the summer shows that the following honey-plants not only yield well, but that they bloom from early in July till autumn, covering a period when there is a dearth of native honey-bloom: mignonette, borage, and black mustard. Chinese mustard is inferior to black mustard. It blooms earlier, and the bloom fades away much sooner. Sun-flowers are unworthy cultivation, while the Rocky Mountain bee-plant blooms too late to be valuable where there is plenty of fall bloom native to the region. With no native bloom to furnish autumn honey, it would be valuable. All of the above do well on light sandy soil.

Golden-Rod Honey.—Our autumn experience proves that golden-rod honey, though rather dark, is of very superior flavour. Several good judges have pronounced it superior even to linn or white clover.—A. J. Cook.

[The above is extracted from the *American Rural Home*, Dec. 2, and we have great pleasure in giving it publicity in England. In the main it coincides with our own experience (in management), and we are glad to find our theory on the value of young bees in autumn so well supported.

Our readers will do well to remember the difference in climate, &c., of England and the American Continent, and we hope will not consider the paragraph on 'Feeding Meal' applicable *here*. Our climate is so uncertain that bees go foraging long before natural pollen can be found, and, therefore, a supply of meal as a substitute is advisable where profit is desired.

The writer of the Report is evidently a thoroughly practical hand, and we wish him every success in *his* School of Apiculture.—Ed. *B. B. J.*]

DORSET BEE-KEEPERS' ASSOCIATION.

'Following the example of several of the neighbouring counties,' says the *Dorset County Chronicle*, 'Dorset has established a Bee-keepers' Association, which, taking into consideration the patronage already bestowed upon it, bids fair to become an important and useful institution. Similar associations have done much good in various parts of the country, not only by encouraging bee culture, but also by teaching cottagers and others a more humane method of obtaining honey than by suffocating bees. When properly conducted apiculture is very profitable, and if the Association succeeds in bringing bee-keeping more into favour with the labouring classes than at present, it will not have been established in vain. The Dorset Association is under the patronage of Lady Wolverton, Mrs. Benett-Stanford, Mrs. Hart Dyke, Sir R. Glyn, Bart., Mr. John Floyer, M.P., the Ven. Archdeacon Huxtable, and Rev. F. Gell. The Rev. G. W. Skene is the President, and the Vice-Presidents are the Rev. P. Hart Dyke, Rev. W. C. Radcliffe, Rev. F. J. Rooke, Mr. P. E. Martin, and Mr. L. H. Ruegg. The committee are Mrs. Hart Dyke, Compton Abbas; Mr. R. H. Belben, Sherborne; Mr. A. G. Radcliffe, Fonthill Gifford; and Mr. N. Benjafield, Motcombe; Mr. G. Lydford, Shaftesbury; Mr. L. Ruegg, Sherborne; Mr. J. Brown, Maiden Newton; Mr. J. A. White, Shaftesbury; and Mr. C. Tite, Yeovil. Mr. C. E. Norton, of Shaftesbury, is the Hon. Secretary. From the rules and regulations of the Society we extract the following:—"That its object be the encouragement, improvement, and advancement of bee culture in the county, particularly as a means of bettering the condition of cottagers and the agricultural labouring classes;" also that "The committee shall cause to be holden an annual apiarian exhibition at a time and place they may deem most suitable to the interests of the Association and its objects; and adopt such measures as they believe will most conduce to extend and improve a knowledge of bee-keeping so far as the funds of the Association will permit."

The *Dorset Express* says:—'We are pleased to be able to state that a Bee-keepers' Association for this county has been started, and is now in full working order, the only requisite being that the names of those who wish to become members should be sent in at once to the Hon. Secretary, Mr. C. E. Norton, of Shaftesbury. The objects of the Society must commend themselves to all who would benefit their fellow-men. . . . . If, as the British Association asserts, a hive of bees, by proper, rational management, may be made to return a profit in ordinary seasons of from 100 to 600 per cent on their actual cost, why, it is abundantly plain that it would be far better our cottagers should turn their attention to the keeping of bees rather than that which seems to be the height of rustic ambition—rearing a pig.'

The *Poole Herald* winds up a short article on the subject as follows:—'We sincerely hope the Association will meet with that assistance from all classes in the county which its aims and objects so well deserve, and that it may long flourish and be a boon to large numbers of agricultural and other labouring classes, by giving them a pleasant, profitable, and very interesting way of spending many a leisure hour.'

The above extracts clearly show that the journalists of Dorset fully appreciate the importance of bee culture, and this must be a source of great satisfaction to local apiarians. Since the Sherborne show, in August last, two of the leading papers circulating in the county have published numerous interesting little articles on bee-keeping. We should add that J. Drew, Esq., LL.D., F.R.S.L., of Weymouth, has also become one of the patrons of the Society; and that Mr. T. Hudson, of Gillingham, and Mr. M. H. Tilley, of Dorchester, have joined the committee since the first paragraph quoted above appeared in the *Chronicle*.

The Secretary is endeavouring to get a committee which will include the principal bee-keepers of the county, especially those who reside in places where flower shows are held. He hopes thus to bring local influence to bear upon the horticultural committees, with a view to getting the prizes usually offered to cottagers exhibiting honey, &c., increased, and to arrange for a proper illustration of the progress apiculture has recently made.

LECTURE ON BEE-KEEPING.

By the Rev. F. T. Scott.

A very interesting lecture on the *Honey-Bee* was delivered in the schoolroom of Hartlip parish on Thursday evening, Dec. 21, by the Vicar of the parish, to a large and attentive audience. The reverend gentleman, who has studied the subject both philosophically and practically, endeavoured to enlighten his hearers upon three points of equal importance and interest—viz., the "Natural History," "Productions," and "Management," of this valuable insect. His remarks on each of these were illustrated by a set of beautiful chromo-lithographic plates, published at Milan, under the auspices of the Italian Central Bee Association. The lecturer expatiated upon the profits of bee-keeping as proved by the large takes of honey in his own and other apiaries during the last favourable honey season, recommended those of his parishioners who were not already bee-keepers to become so without delay, and concluded his lecture by the recital of a very interesting bee sermon published in the last number of the *British Bee Journal*. A Sibertswold hive and a Hartlip hive, both well stored with honey and tenanted by bees, were exhibited in the room.

ADULTERATED HONEY.

There is a popular belief that honey which is brought to market is sometimes adulterated by being mixed with flour; the adulteration may be ascertained by putting a small portion of the honey into pure water; if the honey be pure, the whole will be dissolved in the water, and the water be still clear; if it has been mixed with flour, the water will be clouded and milky-looking.

There is a species of butterfly found at the Cape of Good Hope, which when seized or attacked defends itself like the honey-bee by stinging. It is the only one of that class of insects known to be provided with a sting. It is therefore called the *bee-moth*.

THE BEES.

Book II.—*(Continued.)*

Oft, when with young o'erflows the regal dome,
And each fair queen pants for a subject comb,
Swarm after swarm, successive myriads drive,
Draining of food and force the parent hive.

Ah! soon, ungrateful children, shall ye wail
That pleas'd ye listen'd to the flattering tale,
And mourn repentant, now alas! too late,
Your scanty numbers, and enfeebled state.
When mellow Autumn binds her golden sheaves,
And bleak winds whistle thro' the wither'd leaves,
From Flora's fading form in vain ye try
To cull for wintry dearth a short supply;
Feeble and faint, ye court the cell's deep gloom,
No well-fill'd garner, but a dreary tomb.

So when pale Cambria o'er her Owen's bier
In heart-felt anguish shed the duteous tear,
Far from the fury of each maddening host,
Advent'rous Madoc leaves his native coast,
With fearless prow thro' waves unprest before
To seek in climes unknown a peaceful shore.
Not, as of old, with coward sail they creep
From cape to cape, but dare the boundless deep;
No well-known land-mark guides their course aright,
No flame-crown'd Pharos gilds the gloom of night.
Yet undisclos'd, by strong attraction's law,
Near her lov'd north the charmèd steel would draw,
And all in vain the sailor's destin'd friend
Would in these seas her aid instructive lend:
E'en stout Columbus saw with dire dismay
Quick varying from the pole the needle stray.
No more bright Cynosure disdains to steep
Her fulgent car in the forbidden deep,
Nor fears Bootes now with tardy wain
To bathe his glowing axle in the main,
No more the Dragon winds 'twixt either Bear,
Nor gems Cassiope her silver chair:
The heavens themselves are chang'd, new stars arise,
And spread an useless splendour o'er the skies.
Moon after moon the dauntless Cambrians brave
The toils and terrors of th' Atlantic wave,
Still all they hear the billow's ceaseless roar,
And all they view a sea without a shore,
Till falt'ring expectation lags behind,
And creeps a death-cold horror o'er the mind.
Should flattering hope the fond illusion shed,
Painting on each dim cloud some mountain's head,
Soon melts in air the fancy-pictur'd coast,
And mourns the prince his friends, his country lost!
O'er harps of gold the white-rob'd minstrels bend,
And tones of tenderest woe to heaven ascend,
While Morfa Rhyddlan's sweetly soothing strain
Charms ev'ry care, and softens ev'ry pain.
Hark! what loud bursting shouts "Land, Land," resound!
"Land, Land," again far-echoing rocks rebound.
Forgotten all their toils, the wand'rers pour
On the full deck, to hail the welcome shore;
Again with plausive peals they rend the air,
As now they mark, beyond expectance fair,
The vast savannahs and the wide-stretch'd plains,
Where Nature in gigantic grandeur reigns,
As yet unsoil'd in these her virgin climes

By Europe's spoilers, and by Europe's crimes.
When thro' huge headlands, fring'd with pine-black woods,
Deep ORELLANA rolls her sea of floods,
Sinks lofty PENMAEN to a low-brow'd hill,
And broad-arm'd CONWY glides a shallow rill.
Unchain'd by frost a stranger Flora here
Expands at once her treasures of the year,
And many a fruit to colder climes unknown
Basks in the radiance of this genial zone.
With air unboastful now, ere yet she roam,
And shrine her glories in the crystall'd dome,
Thro' the lone thicket coy BROMELIA shines,
And points unheeded round her polish'd spines.
Delicious GUAVAS either sweet unfold,
The bright red apple, or the pear of gold,
While stately TAMARIND, towering o'er the plain,
Cools with refreshing pulp the fever'd vein.
Sure springs again the once forbidden fruit,
As their long luscious spikes yon PLANTAINS shoot,
And, yet more luscious, boon BANANA weaves
Round her soft mellow globes the shadowy leaves.
Early matur'd, and rapid in decay,
Soon shall her meteor ripeness melt away;
While the stern ALOE, Nestor of the field,
His flowery pyramid disdains to yield,
Till fifty suns have thro' the zodiac roll'd,
And fifty more their annual tale have told.
Ambrosial COCOA pours full tides of milk,
And light GOSSYPIA vies with glossiest silk,
That wraps the nations, tho' as yet consign'd
To wave her useless ringlets in the wind.
And useless now, sweet LIQUIDAMBER, flows
The fragrant gum, which on thy smooth rind glows,
Ere o'er thy oozy leaf "the white man's fly"
Shall, fear'd no more, her peaceful labour ply,
Enamour'd nestle on thy saffron crest,
Or in thy hollow'd trunk her bee-nymphs rest.
E'en, LIRIODENDRON, yet thy tulips gay
Feast but the meal-wing'd flutterers of a day,
Or humming birds, quick glancing to the beam,
In show and murmur like a sun-gilt stream.
Ah! short, fond idlers, is your honey'd reign,
Ere, wafted from afar, the warrior train,
"Arm'd in their stings," shall chase you from the field,
And drain the balm your bloomy harvests yield.
Thick round your lov'd ACACIA shall they swarm,
Though girt with two-fold lance her fragile form,
But, as through fancied sweets the strangers roam,
Oft shall they swell a dark embitter'd comb.
Witness, STRAMONIA, th' inebriate dew,
Veil'd in thy plaited folds of virgin hue,
Where RHODODENDRON wafts her venom'd breath,
And red AZALEA taints her tubes with death,
Where rival KALMIAS glitter o'er the glade,
Or low ANDROMEDA, that loves the shade.
Thence, near the once-fam'd shore, where Phasis roll'd,
Proud of his brass-hoof'd bulls, and fleece of gold,
Th' immortal band, triumphant in retreat,
Felt, as they drank, their bounding pulses beat;
Rush'd the black hebenon thro' every vein,
And fir'd to madness each brave warrior's brain.

"Shall then," bold MADOC cries, "my brethren wage
"Unnat'ral war, and vent their idle rage
"To lord it o'er a bleak and barren shore,
"Torn by rude blasts, by hostile fury more,
"When here blithe nature wantons in her prime
"On the soft bosom of the softest clime?"
Rapt with the thought in this new world to raise
Some semblance fair of Cambria's happier days,
Fain would the royal youth, re-cross'd the main,
Seal with recruited force his promis'd reign.
For this, in homeward haste, they pass the line,
And hail with joy full many a well-known sign;
Fast southing they behold the heaven's huge WHALE,
ORION'S studded belt, and either SCALE,
High o'er their heads the friendly TWINSTARS beam,
And leads pale HELICE her northern team.
Skirting green ERIN'S yet contested ground,
And MONA dark with Druid altars crown'd,
Once more ABERFFRAW'S princely port they gain,
The long proud residence of GWYNEDD'S reign.

There, as the HIRLAS HORN, that mantles gay
With brisk metheglin, charms all fears away,
The plausive tale, in artful phrases drest,
Fires with accordant flame each youth-warm breast.
While love of glory, novelty, or ease,
With still more tempting gold conspire to please,
Down their steep hills, a loud exulting band,
Rush the rapt crowds, and darken all the strand.
Ten well-rigg'd barks th' impatient throng convey
Swift thro' the surges of the western sea.
But where, alas! shall falt'ring history trace
The name or relics of this long lost race?
By dire disease, or savage hordes opprest,
In cold oblivion's tomb the wanderers rest.

If thus late issuing swarms submit to fate,
Alike enfeebled, sinks the mother state,
When, fierce as wolves that haunt the nightly fold,
Arous'd by rapine, and by want made bold,
Spring the fell spoilers, and resistless drive
Th' opposing few, sad remnants of a hive.
Ye fost'ring bee-herds, then, with care benign,
Far from the foe your insect charge consign,
Where closely shelter'd in some distant dell,
Safe may they seal the honey-flowing cell,
Or in the bosom of a filial swarm
Brave with united force the dread alarm.

So, LUSITANIA, once proud Europe's boast,
When VIRIATUS led thy victor host,
Or thy bold VASCO to the rising day
Forc'd round the Cape of Storms his vent'rous way;
Low grov'ling now, thy race degen'rate craves
The gold-bought respite from insatiate slaves.
Ah! fruitless all the hoards of each fair shrine,
And all the glitt'ring treasures of the mine!
Like floods of oil, which feed the growing fire,
New proffer'd gifts but kindle new desire.
'Mid foes infuriate, and fast shrinking friends,
O'er Cintra's rock thy drooping genius bends,
Rolls wistful round the wave his tear-swoln eye,
And fain would hope the kind assistance nigh.
Yes! thou shalt hope; for see on ocean's verge
What vane-crown'd forests peer above the surge,
Till all emergent now the broad hulls sweep—
And trace a foam-bright track along the deep.
Loud calls the herald, as he speeds to land,
Still waving as he calls, the peaceful wand.
"Haste, Lusians, haste, ere fated Lisboa falls,
"Ere lust and rapine riot in her walls;
"Already o'er yon hills Gaul's eagles play,
"In act to swoop, and seize their promis'd prey;
"Ere smoke your cities, and your fields lie waste,
"To join our guardian flag, ye Lusians, haste:
"'Tis ALBION calls, whose sons, humane as brave,
"Beyond e'en conquest still delight to save."
Swift hails BRAZILIA'S prince th' auspicious sign,
And woos in fervent pray'r faith's holy shrine.
Then, while their bark the royal group ascend,
With patriot shouts what moans of anguish blend!
For hard the task, tho' glory fires the heart,
When friends, when kindred, or when lovers part.
To fling each warm affection to the wind,
Nor cast one longing, ling'ring look behind.
Still faithful to her charge, Idalia's Queen
Reins her white swans, and hovers o'er the scene,
Love's nimble train unfurl the swelling sail,
And lightly from the land they point the gale;
O'er the dread bar propitious Nereids guide,

While Halcyons soothe to rest the rushing tide,
Preceding Tritons sound their plausive shell,
And rings from ship to shore the fond farewell.
What lightnings flash! what thunders rock the wave!
Yet deem not these the death-sounds of the brave;
No bolts of fate dart thro' the bursting fires,
But each fresh peal fresh tides of joy inspires,
Responsive to the roar, while echoing cries
Of BRUNSWICK and BRAGANZA rend the skies.
Press'd with far different thoughts, yon spoiler crew
Shrink from the shock, and sicken at the view,
Prophetic see in balmier zones revive,
Sav'd from their hornet fang, the human hive,
And mark enrag'd the glorious course begun,
As scowl'd fell Satan on the new-born sun.
Yes! that bright orb but veils his setting ray,
To spread thro' distant climes alternate day;
While the red ball, by force explosive driven,
Shoots with fierce glare across the vault of heaven,
Frights the sad nations with ill-omen'd light,
Then melts in air the meteor of a night.

END OF THE SECOND BOOK.

NOTES TO BOOK II.

Line 8. . . . *heath-clad* FERWYNS] The long and lofty chain of Berwyn mountains is justly ranked among the Alps of North Wales; though the flatness of its general outline, like that of Plimlimmon, reduces greatly its apparent height. The hills above Chirk, in Denbighshire, form its most eastern links. — See ADDITIONAL NOTE I.

10. *Where brawls rude* CEIRIOG] The term Ceiriog (or stony) is truly characteristic of the small, but rapid stream, which rising on the north-eastern ridge of Berwyn, and watering some narrow glens, winds round the vale of Chirk, and pours its tributary waters in the Dee a short way below BRYNKYNALLT, the elegant seat of Lord Viscount DUNGANNON.

13. . . . . *though native art*] BRYNKYNALLT House was built by the celebrated INIGO JONES, supposed to have been a native of Denbighshire; and has received several additions, admirably coinciding with the original design, under the direction of the present Lady DUNGANNON.

29. . . . . *the trim-built cot*] Within the precincts of BRYNKYNALLT park stands a tasteful cottage, planned by Lady DUNGANNON; not merely intended as an useless ornament, but occupied by a peasant's family, dependent on her bounty.

30. *Where Autumn red*] See ADDITIONAL NOTE II.

33. *Fix, as they shoot*] It is curious to observe the fibres, which shoot at every joint of the common Ivy (Hedera helix), and fasten it to the wall, &c. But still more curious are those of the Virginia Creeper (H. quinquefolia), which branch out into several claws, like fingers, and are tipped with red spongy adhesive cushions. The advocates for the doctrine of *chance* must allow this to be at least a *lucky* concurrence of her lawless atoms.

38. *Lulls him to slumber*] See ADDITIONAL NOTE III.

47. . . . *mimic pageantry*]
"Great nature scorns controul; she will not bear
"One beauty foreign to the spot or soil
"She gives thee to adorn."—MASON.

See ADDITIONAL NOTE IV.

50. *While ocean's conchs*]
"Not so the inland grot; with richer store
"Than what the neighbouring mines and mountains yield
"To hang its roof, would seem incongruous pride,
"And fright the local genius from the scene."—MASON.

54. *Where use and beauty*] "Beauty scorns to dwell
"Where use is exil'd."—MASON.

60. . . . . *with insulated pomp*] Even in the gloomy times of feudal tyranny, each baronial mansion could boast its attendant village, through which the haughty chieftain passed as proudly as between the long rows of obsequious vassals assembled in his hall. How inconsistent then with the habits of a more liberal and enlightened age are those, who rase such objects to the ground, or wholly exclude their view with belts of evergreens!

73. *In every feature varying*] "Facies non omnibus una,
"Nec diversa tamen."—OVID.

—See ADDITIONAL NOTE V.

76. . . . *a present Goddess*]
"Deus nobis hæc otia fecit."—VIRGIL.

Lady DUNGANNON's truly appropriate cottage stands in a neat garden, with arches of honeysuckle before the door, and surrounded by a fence of privet and sweet briar: the only suitable appendage wanting is a range of bee-hives, which the poet has here ventured to introduce, together with all the garden flowers most acceptable to those industrious insects.

77. *With Thrift or Daisy*] Thrift (Statice armeria) and double daisies (Bellis perennis flore pleno) are frequently used as edgings in cottage gardens; and, where bees are kept, are far preferable to box, this giving the honey an unpleasantly bitter flavour.

88. *The past'ral Primrose*] The common Primrose, when transplanted to a rich soil, acquires a deep red or purple colour, and again degenerates to its original pale yellow, if removed to poorer ground. Some of the highly cultivated varieties are scarcely inferior to their brilliant congener, Primula polyanthus.

92. *Nor less the Violet*] The double Violet is preferred by florists, not merely from its fuller bloom, but as producing a richer scent. The fragrance of plants residing in the corolla will consequently increase with the surface of that organ; and the nectaries, being its appendages, will enlarge in the same proportion. But the stamens being thereby compressed, and rendered abortive, a lesser portion of farina must be expected.

96. *With her pied Pansy*] The flowers of the Pansy (Viola tricolor) are pale in its savage state, as a weed in corn-fields. Their change to purple is beautifully alluded to by the poet:
"Yet mark'd I where the bolt of Cupid fell;
"It fell upon a little western flower,
"Before milk-white, now purple with love's wound."
SHAKESPEAR.

The petals are frequently pencilled with black lines; whence MILTON speaks of "pansies freak'd with jet."

104. *Gift of a Goddess*] OVID, with his usual luxuriance of fancy, ascribes the origin of the white Lily to the milk of JUNO.
"Dum puer Alcides Divæ vagus ubera suxit,
"Junonis, dulci pressa sapore fecit;
"Ambrosiumque alto lac distillavit Olympo,
"In terras fusum lilia pulchra dedit."

PLINY mentions the Lily as one of the flowers in which bees delight; and VIRGIL observes:
". . . . . Apes æstate serenâ
"Floribus insidunt variis, et candida circum
"Lilia funduntur."

106. *A second waves*] Though the white Lily is highly fragrant, the orange-coloured species is entirely scentless. Thus, even in the vegetable world, nature shows the same impartiality as in the animal creation; where she bestows splendour on the hoarse peacock, and sweetest melody on the unadorned nightingale.

109. *Aspiring Alcea*] The numerous assemblage of anthers in the flower of the hollyhock (Alcea rosea) afford the bees abundant farina. But they also collect

the balsamic varnish, which coats the young blossom buds, to protect them from the weather. The author has seen one of these insects rest at least ten minutes on the same bud, moulding the balsam with its fore-feet, and transferring it to the hinder legs. It is probably the glue with which they stop the vent-holes of their hive.

110. *And Helianthus*] The Sun-flower (Helianthus annus) is much frequented by bees, and derives its name from resembling the radiant beams of the sun. But its constantly turning to that luminary, appears a vulgar error; for GERARDE says he never could observe it; and the author can affirm Mr. MARTYN's assurance, that he has seen four flowers on the same stalk pointing to as many cardinal points.

112. . . . . *The meek Reseda*] Mignonette (Reseda odorata) is doubly valuable to the apiary, both affording abundant food, and continuing its bloom till the autumnal frosts. Its honey is peculiarly white and delicate.

114. . . . . *nor heed the dazzling gem*] The honey-cup of the Crown Imperial (Fritillaria imperialis) is truly singular, being a glandular hollow at the base of each petal, holding a drop of clear nectar. LINNÆUS observes that "no plant, Melianthus alone excepted, abounds so "much with honey, yet the bees do not collect it." This, however, is not strictly true; these insects being sometimes seen upon the flower. Perhaps it is merely the disagreeable fox-like smell, and no instinctive aversion, that renders them so shy of approaching it.

117. *Cerinthe*]
. . . "et cerinthæ ignobile gramen."—VIRGIL.
Mr. MARTYN supposes the Cerinthe of our poet (which all the translators have wrongly rendered *honeysuckle*) to be the Honeywort, or Cerinthe major of LINNÆUS. Of this, however, the author has some doubts, as will appear hereafter.

118. *And Martagon*] Mr. MARTYN believes the Martagon, or turncap Lily, to have been the Hyacinth of the ancients; and says he has sometimes seen the dark spots on its petals so run together, as to represent the letters A I, forming half the name of Ajax, and expressing Apollo's grief for the loss of his favourite, who, as well as the hero, was changed into that flower.

122. *In gay Mezereon*] The bright crimson bloom of the Mezereon (Daphne Mezereon) is one of the first and most fragrant harbingers of spring; and its scarlet berries, crowned with tufts of glossy leaves, render it ornamental throughout the summer. It is now discovered to be a native.—*Eng. Botany*, 1381.

128. *Ah! here how chang'd*] The Spurge Laurel (Daphne Laureola) which LINNÆUS describes as "sad in "colour, ungrateful in scent, and blowing in a gloomy "season," is now rendered highly subservient to beauty by the gardeners, who engraft on its stock the *Daphne cneorum*, one of the most elegant flowers the parterre can boast.

132. *Pæonia*] The single Peony (Pæonia corallina), with large crimson petals surrounding a ring of yellow anthers, is also ascertained to be a native of this island. —*English Botany*, 1513.

134. *While Œnothera*] The evening Primrose (Œnothera biennis) expands its pale yellow blossoms in the evening only: and its mode of doing this is highly curious. The petals are held together by clasps at the end of the calyx, whose segments, separating at bottom, discover the corolla long before it can open sufficiently to unlock the calyx at top. This also is now found to be indigenous.—*English Botany*, 1504.

138. . . . *Cacalia*] The Alpine Coltsfoot (Cacalia suaveolens) with arrow-shaped leaves and white radiate blossoms, produces so much honey as often to be scented at a considerable distance. Dr. DARWIN "remembered "to have counted on one of those plants, besides bees of "various kinds, upwards of two hundred painted butter-"flies, which gave it the appearance of being loaded with "additional flowers."—*Note to "Botanic Garden."*

146. . . . "*trim Rosemarine*]
"With thee, trim Rosemarine, that whilom crown'd
"The daintiest garden of the proudest peer."—SHENSTONE.
This plant, like Rue, retains its taste and foliage throughout the winter: hence the poet—
"For you there's Rosemary and Rue; these keep
"Seeming and savour all the winter long."—SHAKESPEAR.
It is the earliest aromatic herb that blossoms: and growing wild abundantly in the south of France, gives the Narbonne honey its superior flavour and whiteness.—DICKSON'S *Agriculture, Article, Bees.*

VIRGIL most probably alludes to this plant in the following lines:—
. . . . "clivosi glarea ruris
"Vix humiles apibus casias, *roremque* ministrat:"
though DRYDEN has rendered it *dew* in his translation.

147. . . . *lemon-scented Thyme*] . . . "et olentia late
"Serpylla."—VIRGIL.
Mr. DICKSON recommends to plant edgings of Lemon Thyme (Thymus serpyllum) for bees. *Loc. citat.*

149. . . . . *life-preserving Saye*]
"Cur moriatur homo, cui Salvia crescit in horto?
"Contra vim mortis non est medicamen in hortis."—
OLD AUTHOR.

150. *Apium's light curls*] The curled variety of Parsley (Apium petroselinum) is both more ornamental for garnishing dishes, and less liable to be confounded with the Fool's Parsley (Œthusa cynapium) a poisonous weed much resembling it, and too frequent in gardens. The smell, like that of hemlock, is the best criterion.

150. . . . . *Sinapi's glowing cheek*] Mr. WILDMAN advises the culture of mustard (Sinapi alba et nigra); and also of rape and turnips (Brassica napus, et rapa) as spring food for bees.

151. *Strong-smelling Thymbra*]
"Et graviter spirantis copia thymbræ
"Floreat."—VIRGIL.
The Thymbra of the Latins is supposed to be the winter Savory of our gardens (Satureia montana), which grows wild in Italy; and that of the Greeks another species (S. Thymbra) still found in the Isles of the Archipelago.

151. . . . . *Cambria's glossy Leek*] Mr. LANE observing the bees fond of this plant, raised it largely for their use. *Transactions of Society of Arts, &c.* 1790.—The wearing of Leeks by the Welsh on St. David's Day is derived from the following circumstance. On the first of March, 640, their king, Cadwallo, gained a complete victory over the Saxons near a field full of these vegetables, and his soldiers put them in their hats to distinguish themselves.—BINGLEY'S *North Wales.*

158. . . . *Nasturtia*] Both Asparagus and Nasturtium are much sought after by bees. The latter, besides the splendid show of its saffron buds, and smooth shield-shaped leaves, supplies luxurious man, as well as the industrious insect; for its young flower-buds make a warm aromatic pickle, the expanded blossoms an elegant garnish, and its unripe seed-vessels an admirable substitute for capers. A daughter of LINNÆUS perceived the flowers emitting spontaneously, and at intervals, sparks like those of electricity, both before sunrise, and during the evening twilight, but never when total darkness came on. Is this appearance electric, or phosphorescent?

167. *Fragaria*] The delicious Strawberry of our gardens (Fragaria vesca) which compensates for the want of many a tropic luxury, is altogether the fruit of a cold climate. The Alpine variety produces a succession of fruit till the autumnal frosts set in.

(To be continued.)

Correspondence.

*** *These columns are open to Subscribers, so that their queries, replies, correspondence, and experiences, may be* fully *and* faithfully *recorded; and for the discussion of all theories and systems in Bee-culture, and of the relative merits of all hives and appurtenances, that the truth regarding them may be ascertained. The Editor, therefore, must not be expected to coincide with all the views expressed by the various writers. All Correspondence is addressed to the Editor.*

A SUGGESTION.

I am delighted to learn that the School of Apiculture is to be open so soon, and hope to pay a visit to Fairlawn in the spring. Can't you manage to make your 'light moveable tent, with gauze front,' available for apicultural exhibitions held in the country at a fixed rate? It is the very thing we want, and I fear it will be a long time before the Association will be able to purchase one, judging by the scant support yet given to the scheme. Now, Mr. Editor, do make a move in this direction!—EXHIBITOR.

EARTHENWARE HIVES.

'Insidious man, with specious friendship, forms
A straw-built cot to shield them from the storms.'

In Book II., lines 321, 322, of Dr. Evans' beautiful poem, 'The Bees,' the above lines appear, and in a footnote appended thereto, he says, 'Mr. Bonner, an eminent bee-master in Scotland, proposes to have them made of earthenware.' It so happened the present writer came on a couple of such hives during the by-past season, stowed away in a loft, very probably used in the time of his grandfather. Before peopling one of them with a swarm the coming season, by way of experiment, he would be curious to learn, from any reader having seen such hives in operation, how they succeed. They are dome-shaped, measure inside about 17 inches in diameter at bottom, by fully 18 inches high, a turned flange at base, with a semicircular entrance, and ornament on top, formed of red porous clay, and glazed externally, looking more like an outside cover than a hive.

It is much to be desired that 'our Editor' should see his way to republish, in a separate form, Evans' beautiful poem, so that every bee-keeper in Great Britain may possess a copy.—A RENFREWSHIRE BEE-KEEPER.

INTRODUCTION OR EARLY HISTORY OF BEES AND HONEY.

(*Continued from page* 10.)

The extensive notice we find of 'Mead' and 'Metheglin,' in the days of the Druids, would lead us to believe that bees were domesticated by the Britons; but we have no authentic information on this point, and the honey used in their drinks may have been collected by wild bees. The Romans, when they came (A.D. 45), no doubt taught the Britons how to hive and domesticate the honey-bee.

The mead made in South Wales in the present day is not so potent as that drunk when King Ethelwold restricted the monks of his monastery to a certain quantum to be drunk between twelve of the brethren at supper. Howel Dhu, who was King of Wales about A.D. 490, made a code of laws relating to bees, fixing the various prices of a hive at different seasons; and so highly was mead thought of some thousand years ago, that the mead-maker ranked in the Prince of Wales' household next to the royal physician.

The Anglo-Saxons, at the earliest period, were probably more anxious to domesticate bees than horses. Their produce was an article of food, necessary to brewing mead and extensively used in medicine. In the sixth and seventh centuries bees were altogether wild; they swarmed in the woods, and formed their honeycombs in hollow trees, and were at first classed by law with foxes and otters, as incapable of private ownership, because they were always on the move. Anyone who found them had a right to the honey and wax, though, from several ecclesiastical regulations in the seventh and eighth century, we may infer that their capture was a dangerous amusement, and that their half-naked captors were often severely stung. A favourite mode of taking them was to cut down the tree in which they were, saw off the part containing them, and carry it home. But as the country progressed in wealth bee-keeping became more profitable. By the laws of one of the Saxon kings it was ruled that every 'ten hides of land shall furnish ten vessels of honey.'

The clergy earnestly encouraged bee-keeping, teaching that the bees had been sent from heaven, because the Mass of God could not be celebrated without wax. The first step towards their domestication was the formation of imitations in bark (*rusca*) of the hollows of the trees in which they were found. After a short time a wild swarm became the quasi property of the owner of the trees in which they had settled for three consecutive nights; but if he omitted to discover it within that time, the finder had a right to fourpence, and, if it were not paid, to keep it himself. This shows the difference in value between the wild and domesticated swarms, as a rusca of bees was worth six times fourpence—viz., twenty-four pence.

About the middle of the tenth century slaves (whose duty it was exclusively to attend to bees, and were called bee-churls) were ordinarily attached to wealthy establishments, and from the position of slaves they soon became servile tenants, whom their lord provided with a stock of bees, for which they paid a fixed amount of produce for life, the swarms continuing the property of the lord.

We also find about this time the Anglo-Saxon word bee-cist (bee-chest) and the Latin *alvearia* (bee-hives) usually substituted for 'rusca,' from which it may be inferred that these rough constructions were superseded by regular hives. Not long afterwards the clergy induced Edward the Confessor (A.D. 1050) to tithe bee-hives, an evidence that they had become numerous and valuable, which is confirmed by *Domesday Book*, where they are repeatedly mentioned.

But bees were in those days never more than

semi-domesticated, nor ever altogether private property, as, if they flew away, and the owner did not recapture them within a short time, they belonged to anyone who could.—William Carr, *Newton Heath Apiary, near Manchester.*

(*To be continued.*)

THE NADIRING SYSTEM.

Will some advocate of a system which involves 'Nadiring' kindly explain for my benefit, and doubtless for the profit of many striving readers of 'our *Journal*,' what is the terminal fruition and the ultimate relegation of nadirs and ekes? Nadirs, or nethers, are, by some authorities, to be placed under *stock* hives when increased breeding-space is supposed to be required, and in consequence thereof the thriving of the hives is 'greatly multiplied.' I continually find allusions, not only in 'our *Journal*,' but in others professing to teach (?) bee-keeping, to nadiring; wherein bee-keepers are told to place 'nadirs' or 'ekes' under their hives when supers are put on; and what I wish to be made to understand is, what I am to do with such 'nadirs' after the supers are removed?

I have but a slight knowledge of the (so-called) 'science,' and am not inclined to *venture much* while its most able exponents cannot agree on first principles, and therefore I desire *more light.*

I shall be glad to know how my old friend Pettigrew 'concludes' with his 'nadirs' after *his* fashion; what the 'Renfrewshire Bee-keeper' does with HIS, and what you, Sir, do with YOUR *nadirs.* The late worthy Mr. Pagden, of Alfriston, Sussex, whose success as a harvester of honey-comb cannot be gainsaid, promulgated the nadiring system as the best means of obtaining *pure virgin honey,* and that his system was excellent, his vast consignments of honey-comb, *elegant and luxurious,* to Eastbourne and the other watery resorts of Sussex, to say nothing of his inland trading, will prove. What I, therefore, want to elicit is, what is to be understood by 'nadiring;' and, having 'nadired,' what is to be done when nadirs *ought* to be taken away; and what *ought* then to be done *with them.*

I ought to explain that I, since I dropped the skep as an abomination, have adopted frame (not simple *bar*) hives, and after reading the *B. B. J.*, have concluded that nadiring is not a comfortable process with such hives as I use; and as I know, from long experience (abandoned), the misery of dealing with fixed combs in skeps, or elsewhere, I crave permission to ventilate the nadiring notion; and first ask you, Sir, what you think on the subject.—Nethermost.

[We freely confess to a rather limited acquaintance with the 'nethering' or 'nadiring' system of bee culture, being satisfied that with a bar-frame hive of sufficient capacity, and well under control, it is better to extract the honey from around the brood nest than to give nether space, when about to put on the supers. The natural habit of bees is to build downward, where they can do so without obstruction, and every comb lengthened below the brood nest it is their habit to use for breeding purposes. They do not, however, lengthen their combs, or extend them in *any* direction out of mere wantonness, but only when the incoming of honey warrants the extension either for the purposes of storage or for breeding accommodation. Under these circumstances hives become exceedingly heavy and strong, and nadirs and ekes are repeatedly added, until sometimes the whole pile of straw is in danger of collapsing from its excessive weight and the frailness of the material of which it is formed. In *taking up* such hives, to obtain the honey, it is invariably found that the honey and pollen cells are so closely adjacent to each other, and so intermixed, that pure honeycomb (except in small pieces) cannot be found in them, owing to most of the combs having in turn been used for breeding purposes. The Stewarton system recognises this fact, and when the upper tiers of their stock hives are fairly filled with the spoils of the fields, and the cells extended and sealed, so that only sufficient room exists between the combs for a single bee to pass, a 'nadir' or 'eke' is placed below the stock hive, and a super above it, so that pure honey-comb may be stored above the former *upper tier*, which, as it were, bridges off the top story from the queen and her retinue, while the nadir, being rapidly filled with *new combs*, offers sufficient temptation for her majesty to remain there. There is a deal of sound common sense in the *Stewarton* practice of nadiring, as at the end of a season most of the original *upper tiers*, being filled with honey and pollen, offer facilities for fortifying weaker stocks and swarms, without the necessity for feeding. The principle generally in use in England amongst advanced bee-keepers is that which was so ably advocated by the late Mr. Woodbury—a chief feature of whose able teaching as regards hives was, that all frames should be of exactly one size, so that each might be interchangeable with every other in the apiary, a facility which the Stewarton hive does not fully possess. Coupled with the bar-frame system, the extractor enables us to relieve the over-charged brood nests of modern hives of their honey, thus at once giving comb space, and rendering nadirs and ekes unnecessary; while the perforated zinc adapter, placed between brood nest and super, forms a bridge equivalent to the upper tier in the Stewarton hive, and is by many believed to be the best safeguard against the queen's entry to the supers. We, however, have generally found that, while there is breeding space below, the queen will not leave the brood nest, and by the time the super combs have been wrought down, there is generally such a filling of the upper cells of the stock hive, that the 'bridge' is again formed, and acts as a sufficient barrier to the queen.—Ed.]

BEES IN THE IVY.

If Southey had lived in 1876 he would possibly not have written—

> 'When the last flowers of the ivy are gone,
> And all thy work for the year is done,
> Woe then for thee, thou busy, busy bee!'

as a more humane method of management is making its way amongst the bee-keepers of to-day.

A correspondent inquires if bees store honey from the ivy. That they do so sometimes is proved by the following:—

I have kept bees for forty years, and during the past sixteen years have resided within reach of a considerable quantity of ivy. When the weather is favourable (which is not very often in the end of September, and through the early part of October) the bees make the most of this their last opportunity of the season. This year proved a marked exception to a pretty general rule, the highest temperature from Sept. 23rd to Oct. 22nd showing an average of 61.62 deg. My bees had done no work

after Aug. 22nd. They commenced the ivy about the 23rd of Sept., and ceased their attention about the 22nd Oct. A few figures will show the results of their industry:—

Hive.	Aug. 22nd.	Oct 20th.
No. 1	48 lbs. weight.	.... 50 lbs. weight.
„ 2	42½ „	.... 41¼ „
„ 3	55½ „	.... 57 „
„ 4	39 „	.... 38½ „
„ 5	59½ „	.... 60 „
„ 6	40 „	.... 40 „

To give the foregoing figures their due importance, be it known that these hives would, but for the ivy, have lost, on an average, at least 7 lbs. per hive from Aug. 22nd to Oct. 22nd. This I have proved by weighing hundreds of hives during the past thirty-five years. I have been in the habit of weighing my hives once a month to ascertain the loss of weight during the winter season. The first month has invariably shown a loss (average) of about 5 lbs., and the second month a loss not much exceeding 2 lbs. Afterwards it is much less, till the days begin to lengthen.

These remarks apply to hives that are undisturbed during the time mentioned.

It might easily be shown, the hives, whose weight I have given, must each have collected from 7 to 10 lbs. of honey and pollen from the ivy.

On the evening of Oct. 3rd at 8 o'clock seven or eight musicians of the Queen's Band were playing their joyous tune on the doorway of one of the hives. —James Bristol, *The Academy, Tisbury, Wilts.*

SHAMS AT SHOWS.

You recently called attention to the fact that the price marked on articles exhibited at the Palace shows did not always represent the cost to the purchaser. This I can corroborate. I gave an order for a hive, for which I had to pay just 50 per cent above the figure quoted. I sent for another article which has never come to hand, and I believe the reason to be that the price named when in competition did not represent its real value. I wrote to a third exhibitor, asking him to send me a couple of articles like those he had shown, and he replied to the effect that he had ceased to sell them. Now, in each case the price was, I felt convinced, not the fair market value, and the means I took to put it to the test have tended to confirm me in that opinion.—Bee-keeper.

A LANARKSHIRE BEE-KEEPER *VERSUS* MR. PETTIGREW.

In the *Journal of Horticulture* of November 9th, 'A. Pettigrew' gives a long letter of a very suspicious nature, and in it he makes an allusion to the fact that he had once found fault with the size of the Stewarton hive, and for which a dealer in these hives was very much 'offended.' Now, as this insinuation applies directly to me, I beg here to give that unwarrantable statement a flat contradiction. Had it been an undecided question, which was the best bee-hive, and a keen run for popularity for the best hive, and the evidence coming from men of worth who had tested both systems, and making such a statement, I might have been 'offended;' but, coming from Mr. Pettigrew, who knows as little of advanced bee-keeping as the amount of respect he pays to others' feelings—'offended!'—no, I was disgusted to hear such statements coming from any person, more so from one who professes to be more than a bee-keeper; and had I not met with him in a different sphere than bees, I might have overlooked his rash statements. But I ask you, Mr. Editor, what opinion would you form of a person who takes it on himself to teach the word of God, and be void of charity, and making statements he could not substantiate? I think you would be very apt to call that person a hypocrite, and advise him to go to his bended knees. Any person who has read Mr. Pettigrew's articles will endorse all I have hinted at, and will have observed his vacillating manner, and the want of originality in his suggestions,—at least this has been the case with me.

In the article referred to he not only condemned the Stewarton hive as small (showing clearly that he was speaking of a thing he knew nothing about); but said that it, as well as other wooden hives, is worthless; and when I tried to vindicate their superiority, he, with his individual characteristics, doubted my honesty, and declared that my statement would have no more weight with honest and intelligent bee-keepers than 'a butterfly's sigh in love;' and at the same time finding fault with writers assuming a *nom de plume*. There was some plea in this, because had he known whom he was writing of, certain statements he made would have been omitted by him; but let me here ask Mr. Pettigrew,—he has more than once tried to throw cold water on dealers,—and, sir, if he values truth and honour, as a gentleman let him answer the question,—Is he not himself a dealer? I am very far mistaken if dealing has not been one of the items that has swelled the balance-sheet he has so ostentatiously shown to the world; and I further put the question, seriously, who could put full confidence in him after the 'Manchester super?' He charged the Ayrshire people with wholesale fraud, myself amongst the number; and if we believe his own statements as to the management of bees, I am convinced that there is more admixture in one pound of his honey than was in the whole honey shown at Glasgow this year; and as regards honesty or honest men, there is as much of that amongst the Ayrshire bee-keepers as in any other part of Scotland or England, Manchester not excepted. As a proof of Mr. Pettigrew's vacillating manner, I quote the following from the *Journal of Horticulture*, which this letter ought to have been addressed to, but on account of these articles, when they contain a spark of truth about Mr. Pettigrew, being invariably suppressed, for this reason I appeal to the *British Bee Journal*, the only British paper worth reading on bees. His words are: 'Foul brood was found in many hives this year. I remember no season in which it was so prevalent (*and will ever be prevalent while Pettigrew's advice is taken*—the italics are my own). The cause of the origin and progress of this malady is still veiled from the most advanced and enlightened apiarian, every attempt to

investigate and explain the mystery of foul brood has been unsuccessful and unsatisfactory; (*Mr. Pettigrew's particularly so*, my italics again) the best that has been done by way of explanation has consisted merely of guess work. My own guess work has gone in the direction of imperfect feeding or improper food, &c.' Now, let me ask Mr. Pettigrew where he found this guess work? Has he been reading the *British Bee Journal*, and perusing some of the articles on foul brood there? Will he answer this question, and tell us why he has changed his opinion so hurriedly, without giving his reasons for doing so? It is not very long since he prophesied, telling the bee-keepers of Great Britain that there would be a dire calamity of foul brood amongst bees this summer, on account of the cold causing the bees to leave their brood, and later on he tells us that his prophecy was fulfilled; to say more, would be simply a work of supererogation, but to those who wish for some amusement, let them read and study Mr. Pettigrew's articles on bees.—A Lanarkshire Bee-keeper.

BEE ASSOCIATION FOR SHROPSHIRE.

I am endeavouring to start a 'Shropshire Bee-keepers' Association.' May I ask any of your readers who would support the movement to put themselves in communication with me without delay? We have the great advantage of much-promised support from the Shropshire Floral and Horticultural Society, which offers to assist in giving prizes and in providing means for exhibition of bee-manipulation at their next annual show. I am proposing an annual subscription of 5*s*., but to make it pay we want *numbers*.—C. Fielding.

BEE-KEEPERS' CONVERSAZIONES.

Where lectures cannot be arranged for, a few bee-keepers living in any town or village could manage to pass an evening very pleasantly by meeting at the house of one of their number, for the purpose of discussing topics of interest in connexion with bee-culture, talking over their experience, exhibiting model hives or other apicultural articles, reading extracts from the principal bee-books and chatting about them, showing diagrams, if one of the number should be fortunate enough to possess any, bringing together curious specimens found in their respective apiaries, &c. Moreover, many a man who would not lecture to a large mixed audience would read a paper to a score of kindred spirits. A friend has recently sent me an essay on Bee-keeping, written by a veritable hermit, one who lived and died alone. He took great interest in his bees though, and had numerous stocks; so he was induced to read a paper about them to a Mutual Improvement Society. Local secretaries will do well to take the hint, and set a few such gatherings afloat during the winter.—C. T.

THE FLIGHT OF BEES.

You may, inform your correspondent, J. H. Eldridge, that the bees on this side the Tweed have a flight of over ten miles. I have heard of a whole swarm going seven miles; and a friend of mine exhibited one lately that he took on the summit of Ben Lawes, which is five miles from any habitation. My own go daily (in the season) to Kilmaur Hills, crossing the loch a mile and a half broad, so that they make the return journey three miles, besides flitting from flower to flower.—R. J. Bennett, *Glasgow, Dec.* 7, 1876.

MR. COWAN'S SYSTEM—AND C. T.'S CHALLENGE.

Replying to an esteemed correspondent, Mr. Cowan writes to the effect, that the system he pursued in the production of his splendid supers of 1876 was similar to that by which the grand results of 1875 were obtained, and further description is, therefore, unnecessary. He continues,—'I see there is a challenge thrown out by C. T. in last month's *Journal*, to obtain six new subscribers to the British Bee-keepers' Association, which I, for one, will accept.'

Foreign Intelligence.

BEE-HIVE AND HONEY SHOW:

Philadelphia Centennial Exhibition.

In a country where bee-keeping receives so large an amount of attention as it does in America, it is surprising to find that the number of exhibitors of apiarian appliances, at the Centennial, has been so small (not more than a dozen altogether), and it should have been reserved for an English firm to make the largest display, and carry off a medal.

There appear in the catalogue two entries from England, Mr. Lovey, of Cornwall, and Messrs. Geo. Neighbour and Sons, of 127 High Holborn and 149 Regent Street, London. The latter are the exhibitors that made the largest show, and it may be presumed the best, for as far as information has been received, they are the only exhibitors who were awarded a prize medal for bee-hives and bee-furniture.

Their collection consisted of their well-known Improved Cottage Hive, Bar and Frame Hive with outside cover and stand; the Cottage Bar and Frame Hive, with divisional super, for which they received a prize at the Crystal Palace Bee Show; also the zinc adapter with perforations to admit workers, but to exclude queen and drones; the Observatory Unicomb Hive, which, with some modifications, gained a prize at each of the last two bee and honey shows: stereotype plates, for making impressed wax-sheets, and waxen sheets made therefrom: Mr. Cheshire's apparatus for making wax guides, which also obtained a prize at the Crystal Palace Bee Show; bee-feeders of various kinds, comprising the bottle feeder, new round wood feeder, and round zinc feeders; fumigators, honey glasses, &c., altogether occupying a space of 144 feet in the Agricultural Hall. The honey extractor with metal cases, to take the combs, was sent, but appears to have been miscarried, as no tidings of its having been exhibited have been received.

This exhibit attracted a great deal of notice from American bee-keepers, the straw hives especially excited much curiosity, being so different to the usual kind of hives worked in the United States; but by many they were not considered so suitable for their country, because the straw would be likely to form a harbour for moths, which are so destructive to hives in America.

Possibly some explanation will be given how it has happened that so limited a show has been made by American hive-makers and bee-keepers.

Echoes from the Hives.

20 *Albert Street, St. Ebbe's, Dec. 25th*, 1876.—'I am sorry to say that, though the bees did not seem very hostile to the queen, yet, about a week after they were fumigated, I found her cast out of the hive, and though she revived when placed near the fire, yet they had so mutilated her by gnawing her legs off that she could not stay on the comb. I think that though unsuccessful this time I must have another try by joining the queen to the stock after taking an artificial swarm from it. I may mention that I returned the old black queen without any trouble; the bees set up a loud humming directly I put her in, though she had been away for a fortnight. My bees have never seemed in such condition for wintering as they are now. I extracted every ounce of honey in August, and fed them through one hole up to November; and in the stock to which I tried to join the Italian there is brood now. Wishing you a happy Christmas and a prosperous New Year.—J. C.'

Dorset.—'There has evidently been a glut of honey in this district during the past reason. Advertisements, offering it by the hundredweight, have appeared in the county papers, the quotations ranging from 9*d.* to 1*s.* 6*d.* per pound, according to quality and quantity. A local chemist laid in a large stock for use in his business at 7*d.* per pound. But the "cheap and nasty" foreign honey finds considerable favour amongst retailers, as they get it at about 6*d.* per pound.'

Somerset.—'"What an extraordinary season!" is the common exclamation. Birds building nests and laying eggs; lilac in bloom in December; the thrush singing blithely in the morning, with a clear blue sky overhead, and genial sunlight all around, but hail or driving rain and bitter wind in the afternoon. In the early part of the month I saw bees busy on the laurustinus, which has been flowering most luxuriantly, and heard of one vixen stinging a stoker as he sat by the fire in his boiler-house.'

NOTICES TO CORRESPONDENTS & INQUIRERS.

Hebden Bridge.—The mouldiness arises either from the edges of the fustian not being protected from the weather, from the several layers not being perfectly clean—*i.e.*, free from greasy matter—or from some portions of the upper story of the hive (or roof) resting upon the fustian, and preventing the passage of the vapours through it.

The size of the frame of the Hartlip hive is 14¼ in. long by 8¾ in. deep inside measure.

We regret that the labour consequent on our removal has hindered the production of the promised Catalogue, but it shall be our first work henceforth.

Covers for Binding the British Bee Journal, *may be had, price* 1*s. at the Office, Hanwell, W.*

OUR WANT AND SALE COLUMN.

Wants may be advertised at 2*d.* per line of eight words, for one insertion, renewable in succeeding months, for 3 months, without alteration, for half price. Replies must contain stamped directed envelope, or they will not be forwarded.

All monies must be deposited with the Editor, who will communicate with the vendor, when, if a sale be effected, one penny in the shilling will be charged on all amounts not exceeding one pound, and one halfpenny additional will be charged on every shilling beyond that amount, and the balance forwarded to the vendor.

No.

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327 'The National Bee Journal.' Vol. IV., Nos. 8, 11, 12. Vol. V., No. 1. 1*s.* each, or 4 Numbers for 3*s.*

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330 Swiss Bar-frame Hive. Painted, 8*s.*

331 Three Rye Straw Hives, workmanship guaranteed, cane-worked, locked stitch, turned wood feeding hole, rim top and bottom. 8½ × 16. Price 10*s.* 6*d.* Berks.

335 'Journal of Horticulture,' in good preservation, April 2nd, 1874, to September 23rd, 1875, inclusive, 10*s.*

338 For Sale.—A large number of frames of pure sealed honey-comb, invaluable for giving to new swarms, price 1*s.* 6*d.* per lb. Yorkshire.

343 One Carr-Stewarton Body Box-stand, 3 octagonal supers, and wooden cover, 25*s.*

344 One Neighbour's Improved Cottage Hive, 3 glass-stands and zinc cover, used one season, 30*s.*

345 One Woodbury Hive, complete, used one season, well painted, 18*s.*

348 Plain Wax-sheet, per lb. 4*s.* post free.

369 Vol. III. *British Bee Journal* (unbound), 6*s.*

371 Four zinc Bee-feeders, mahogany floats. Ireland. 1*s.* each.

374 Wanted.—Stocks or swarms of English Bees. Address G. Wear, Arslaby, Whitby.

375 Finest Heather Honey, in comb or in tins. Apply to A. J. Anderson, Tullochleys Clatt, Aberdeen.

379 Fine extracted Honey 1*s.* per lb.; also small supers 1*s.* 6*d.* per lb. Sussex.

382 'The Best Management of Bees,' fully illustrated, by Samuel Bagster; also 'Practical Bee-keeping.' The two books delivered free only 4*s.*

383 'Practical Directions for the Management of Bees, to their greatest advantage, by that able author John Keys;' also 'Bees, their Habits and Treatment.' The two books cheap at 4*s.* 6*d.*

384 25 lbs. of best Super Honey in frames, also best extracted Honey in 7 lb. jars. Offers wanted.

385 Good healthy Stock of Bees, 12*s.* 6*d.*

386 Three Improved Cottage Woodbury Hives, price 17*s.* each. Well painted.

387 Honey for Sale.—130 lbs. of Pure drained Honey, at 1*s.* per lb.

388 Pure Virgin Honey-comb, in wooden and glass supers, from 5 to 30 lbs. weight. Price according to quality. S. F. Clutten, Whittingham Hall, Fressingfield, Harleston, Norfolk.

389 Wanted.—Melilot Clover Plants. H. J. Fust, Hill Cottage, Falfield, Gloucestershire.

390 Offers requested for Honey, and Heather Honey-comb. Durham.

391 For Sale.—A beautiful glass Super of finest Honey-comb, weight 7½ lbs. 11*s.* Hampshire.

393 For Sale.—A quantity of Phacelia, Borage, and Melilot Seed, in 6*d.* and 1*s.* Packets, 1*d.* extra for postage. Also a lot of strong Plants of Melilot, 1*s.* per dozen to any address, free to nearest railway station from vendor.

394 For Sale.—Forty Vols. of the Naturalist's Library, First Edition, in good order and original boards (covers). Price 10*l.* 10*s.*

395 The Alsace Bee-Keeper for 1876 (Der Elsassische Bienen-Züchter), clean and uncut, price 5*s.* each.

THE

British Bee Journal,

AND BEE-KEEPER'S ADVISER.

[No. 46. Vol. IV.] FEBRUARY, 1877. [Published Monthly.]

Editorial, Notices, &c.

FEBRUARY.

The extraordinary mildness of the present season, almost without parallel in this fitful country, will doubtless be prejudicial to the welfare of our favourites, the bees, inasmuch as, while permitting them to be active on fine days as foragers, yet, there being no possibility of natural ingathering, either of honey or pollen, the suspension of breeding will continue, except in a very slight degree, and wear and tear of muscle and fibre will cause the gradual depopulation of colonies, to their great injury generally, and in some instances to their utter ruin.

In many localities pollen-carrying has been already noticed, offering strong evidence that time is somewhat 'out of joint;' and that flowers and trees as well as bees are influenced in a way which experience teaches will, if continued, interfere greatly with their prosperity in the future, and probably be the cause of their destruction. The end of January (mid-winter) has arrived, and as yet there have hereabout been no signs of winter weather except a storm of snow, which vanished in a few hours, and on two or three mornings hoary white frosts, such as are usually considered the harbingers of rain, followed by bright sunshine during the days; and on such the bees have been as active as if it were the middle of April, and trees, shrubs, and flowers, may be said, by their forward appearance, to have fostered the delusion.

Rain we have had most plentifully, and we may add most disagreeably, during nearly the whole of December and for the greater part of January, so that stocks in unprotected and neglected hives have had a hard time from the continual wetting to which they have been subjected, mitigated only by the extreme mildness of the weather.

During the fine, sunny days with which we have been favoured, we have uncovered every hive in our apiary to the very quilt, giving them the full benefit of the genial warmth which prevailed, and destroying every insect pest found about them. In this way innumerable spiders have met their fate, and not a few queen-wasps have come to a painless if not a happy end during their state of torpor.

Nor has the mild weather been without its effect on apiarians, who, delighted with the humming of their bees, have begun to feed them for stimulative purposes; but in every case we have advised that such a course, at this early date, is most unwise, as, should a week of cold weather ensue, while the hive contains brood, a great deal of injury will be the consequence. It is a most trying condition of things, when the weather tempts the bees out to their own destruction, and it is impolitic to induce them to breed and recuperate their numbers. An inebriate, holding by a lamp-post, declared himself 'in a quandary,' for, said he, 'if I stay here, I shall lose my train, and if I attempt to go on I shall find myself in the gutter;' and bee-keepers may be said to be in a somewhat similar strait; for if they do nothing, the bees will dwindle, and if they attempt to induce breeding, to keep up the numbers, a greater danger awaits them. There is, however, a crumb of comfort in the fact that, if well housed, *i. e.* well roofed in and perfectly dry, the dwindling will not, as a rule, continue beyond a certain point, as instead of foraging, they will be more intent on clustering, to generate the heat necessary to life, and except when out for a cleansing flight, will scarcely leave their hives until the spring flowers and blossoms appear.

We have known many instances when, in the middle of March, there has not appeared to be more than a teacupful of bees in the hives, and these, compactly knotted together like a ball, would seem to be useless as the nuclei of great colonies, yet by the end of April they have multiplied prodigiously, and made excellent stocks. Again, we have seen stocks which in March, having been inopportunely tempted to early breeding, occupied several combs, but which through a cold snap, were compelled to cluster as best they could, and have been rendered useless for the remainder of the season, if they have not been entirely destroyed. The solution of these problems is easy. In the first instance, the bees, having no brood,

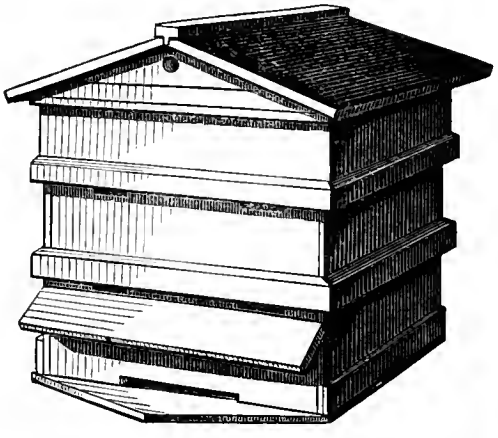
could take possession of the empty cells, and having crept into them and filled them on both sides of the combs as far as was practicable, other bees would cluster between such combs and form what might be called a solid mass capable of generating sufficient life-maintaining heat to enable the whole to survive. At the same time, it must be understood that paucity of numbers precluded the idea of breeding through lack of income; there being no foragers because the smallness of their population necessitated their clustering for self-preservation as before stated. Yet when the weather permitted them to expand, and eggs and brood took the place of the bees in the cells, and the latter (the bees) occupying more space in the hive were enabled, while nursing the brood, to send out some of their number as ingatherers, the recuperation of their strength became a matter of time only, and after the lapse of three or four weeks the increase would be most rapid, and bees would soon be hatching at the rate of one, two, or three thousands per day. On the other hand, the stocks that had untimely been tempted to breed, had, while the fine weather lasted, filled their combs with brood in all stages; and it will be evident to an ordinary mind, that when the cells are occupied with brood, it is impossible for the bees to creep into them as they do when empty cells present themselves, and consequently a 'spell' of cold weather, while causing the bees to condense themselves into the smallest compass for the sake of warmth, has them at its mercy if it be continued for a few days.

It is tolerably well understood that brood of itself cannot generate sufficient heat in winter to keep itself alive, although in hot weather, if a hive, well charged with brood in all stages, be suddenly deprived of its bees, much of the brood will hatch, the stock hive continue to exist. The fact is due to another fact, viz., that immediately on being divested of its population, young bees would begin to hatch at the rate of hundreds, or perhaps thousands, per day; and these young bees being nurses and heat-producers, would at once undertake the requisite work of queen-raising and feeding the infant brood, and thus the stock might renovate itself. But it being evident that during winter the population of a hive can produce only as much brood as itself can keep sufficiently warm, anything that mars the heat must be detrimental to the colony; and therefore 'a cold snap,' which causes the bees to forsake their outer combs of brood, introduces the elements of destruction into the hive which may end in the annihilation of its inhabitants. A little consideration will satisfy anyone that if the generators of heat are compelled to desert their outer combs of brood, and such brood cannot exist of itself, it will die and become cold, and such cold brood will abstract the vitality from the brood on the opposite sides of the combs, causing its death, and seriously affecting the bees that may be between them; and if the cold weather be continued, as before suggested, such bees will either be compelled to retreat, or will, by consuming large quantities of food for heat-producing purposes, run great risk of becoming dysenteric, and that disease, when established in a hive, during continued frost, increases so rapidly that in a few days its condition becomes hopeless.

Looking at these facts, and taking into account the possibility, and the probability too, of a visitation of cold weather, we seriously advise every bee-keeper not to stimulate his bees by continuous feeding, or by the exhibition of artificial pollen near the hives, until crocuses are well in bloom and the bees working freely upon them, and in the meantime to use every precaution to husband the heat of the hives and keep them dry and comfortable.

WOODBURY STORIFYER.

This hive is designed to meet a want long felt, by which the Woodbury hive could be adapted to storifying purposes. Its sectional boxes are of the exact area of the Woodbury hive, viz. 14½ inches square inside, and for

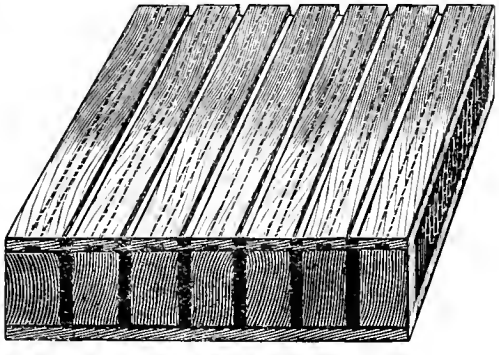


convenience in storifying or nadiring every section is similarly furnished with ten bar-frames, whose top bars are of the Standard type, so that each box may surmount or nadir a Woodbury, form part of a stock hive, or be used as a nadir or super, in which latter case two of the frames should be removed and the remaining eight regulated to equal distances apart, where, by the great width of the shouldered frame-bars, they will hang plumb, without liability to swinging or displacement.

ALEXANDRA SUPER.

This is a sectional super, and may be cut to pieces with a penknife; but inasmuch as the top board is *in one piece*, it forms the best show super extant, as there can be no culling of sections from various hives, to form a grand pile.

The top is grooved on both sides, underneath, to receive wax-guides (*see* dotted lines), and



on top to permit of easy separation of the sections (double lines). The ends are grooved on the inside, to receive glass-slips, which, when properly arranged, actually prevent crooked comb-building, and the sides are of glass, so that the operations of the bees may be readily observed. No more beautiful specimens of honey-comb have ever been produced than have been formed in these supers.

GIRDWOYN'S ANATOMY AND PHYSIOLOGY OF THE BEE.*

This work comes to us with the highest recommendations. It has obtained the Medal of Merit at the Universal Exhibition of Vienna, and the Medal of the First Class from the Imperial and Royal Society of Cracow. It is the production of M. Girdwoyn, a native of Poland, and the execution of the original drawings occupied him above two years, and required the continuous use of the microscope. The work has been published in Paris, and consists of twelve lithographed plates, which are accompanied by, and fully described in, forty large folio pages of letterpress.

Plate I. gives us representations of the mature worker-bee, the queen-bee, and the drone. II.—The heads of the bees. III.—The structure of the mouth and antennæ of the worker-bee. IV.—The organs of sight. V.—The thorax and its appendages. VI.—The abdomens, the apparatus for secreting wax, and the cellules of wax. VII.—The system and structure of the nerves. VIII.—The digestive organs. IX.—The respiratory system, and the organs of the circulation of the blood. X.—The genital organs. XI.—The sting and the muscular structure. XII.—The bee in its various periods of transformation.

The bare enumeration of the subjects of the plates gives but a slight idea of the value of this work. The plates contain no less than 172 figures, laying bare the whole organism of the honey-bee; and the feeling most prevalent in arising from the study of all these organs and nerves is that of admiration of the 'Great Work-Master,' and His power in adapting them all to the functions to be performed by this insect in its order in creation. The beauty, the precision, and exquisite finish of the plates, are most marvellous. Without desiring to detract from the merit of similar works, we are constrained to admit that it far surpasses all its competitors in profuseness of illustrations and minuteness of details. We trust that every Bee Association in the kingdom will obtain a copy of the work for the use of the members for reference. Lecturers on the honey-bee will find it invaluable. It should be in the hands of every cultivator of the science of apiculture.

The letterpress which accompanies the plates is of the greatest value. It formed a portion of the *Mémorial de la Société Polonaise des Sciences exactes*. The Introduction gives us the position of the bee in the order of Insects, and the subdivision of its species; and it points out the various kinds which are to be found in the respective countries of the world. The work itself is an exhaustive treatise on the anatomy and physiology of the bee. We trust that the intelligent artist and the enterprising publisher will receive much encouragement from the apiarians of the British Isles.

* *Anatomie et Physiologie de l'Abeille.* Par Michel Girdwoyn. Ouvrage avec donze planches en lithographie. Paris: J. Rothschild, Editeur, 13 Rue des Saints-Pères. 1876.

BEES AND THEIR HABITS.

A highly interesting and instructive lecture of the above nature was delivered on Friday evening in last week, by the Rev. W. S. Clarke, B.A., curate of Bourton, in the National School. The Rev. S. J. Hulme, Rector, presided over a large attendance.

The following is a syllabus of the lecture:—Historical notices of bees—various kinds of bees, and their ways of living in different countries—the houses which they build for themselves: its interior, store-houses, and nurseries, and the various duties of the inmates—the anatomy of the honey-bee, and its various appliances for its work—the enemies of the bees, and their artful modes of attack—a plea for a more humane treatment of bees, showing how bee-keeping may be made profitable without their annual destruction.

The lecture was an entertaining and exhaustive description of the peculiar habits of bees, and was rendered

more than usually intelligible by the exhibition of the beautiful Italian plates (by Clerici) of the anatomy of the bee, and by sundry specimens of bees alive, and doubtless great good has been done. The information conveyed was of a truly valuable nature, especially to rural inhabitants, the lecturer concluding his address by demonstrating how it is possible that bee-keeping may be made profitable without the annual massacre so common in country districts.

EAST OF SCOTLAND BEE-KEEPERS' SOCIETY.

The Annual General Meeting of this Society was held in Lamb's Temperance Hotel, Dundee, on the 12th of January, President Lorimer in the Chair.

The Secretary reported that 109 members had joined the Society, besides the members of a Branch Society lately formed at Blairgowrie; that, in addition to the regular meetings of the Society, at which papers had been read and discussions held, there had been gatherings of bee-keepers addressed by the Secretary at Arbroath, Inchture, Longforgan, and Blairgowrie. Public practical lessons in bee-management had also been given at Duntrune, Castle Huntly, Deeside, Cupar Angus, and other places. The first Annual Exhibition of Honey, &c., held in connexion with the International Flower Show at Dundee in September last, had been a great success, and proved the wisdom of forming such an alliance. So impressed were the Committee of the Horticultural Society with this, that they have voted a subscription of 20*l.* towards a similar Exhibition in September next. The general results of the year's operations have been a revival of the art of bee-keeping over a large district of country reaching from Fife to Aberdeenshire, the general introduction of bar-frame hives and humane and profitable methods, and very tangible returns in hard cash to those cottagers and others who were not slow to avail themselves of instruction in those methods.

The Report concluded with a recommendation to endeavour to get honey exhibits introduced into every Horticultural Show in the district, and to get all the nobility and landed proprietors interested in the subject.

Office-bearers were then appointed for the year, the Committee being largely increased. Mr. Henry Lorimer continues as President; Mr. Raitt, Liff, as Secretary; and Mr. J. D. Ker, Douglasfield, was appointed Treasurer.

A Schedule of Prizes for the Exhibition of 1877 was passed, amounting to upwards of 44*l.*

Mr. Stewart, Arbroath, then read a remarkably well-digested paper on the proper management of the bees, urging the superiority of the bar-frame hive and the American system of working it.

Mr. Raitt then read part of a paper on the 'Natural History of the Honey-Bee,' which he had prepared for the Dundee Naturalists' Society. He also explained the beautiful series of plates on the Anatomy of the Bee, issued by the Italian Bee Society.

MAKING THE MOST OF IT.—Some time since a person in the neighbourhood of Keswick, having several hives of bees to dispose of, and being desirous to attract purchasers, caused a placard to be printed announcing a sale, with these extraordinary head-lines:—'Extensive sale of live stock, comprising not less than one hundred and forty thousand head, with an unlimited right of pasturage.'

KING GEORGE I. of Greece is preparing a book on the *Bees of Hymettus*, and has made a collection of ninety different sorts of honey from various countries. His Majesty has a special fondness for birds. Among others he has five trained magpies, and a gigantic tamed vulture named Miltiades, which he takes pride in stating were all trained by himself.

THE BEES.

NOTES TO BOOK II.—(*Continued.*)

170. *Alike transported*] The common Currant (Ribes rubrum et nigrum) is also the native of a colder climate, growing wild in the mountainous parts of Durham and North Yorkshire.

174. . . . . *Grossularia*] The Gooseberry (Ribes grossularia) is also a native, growing wild in the woods of Yorkshire. Each bud is armed with two or three strong prickles. The green fruit, just before they soften, or change colour, make, with a due proportion of sugar, a wine little inferior to genuine champagne. All the species of this genus afford an early spring food for bees, and appear to furnish the pale green pellets, then seen upon their legs.—See ADDITIONAL NOTE VI.

179. *Idæus*] The twice-bearing variety of the Raspberry (Rubus idæus) ripens a second crop in October; but the fruit is seldom large, or well tasted.

183. *Chang'd by Medean art*] Both budding and grafting were well known to the ancients. OVID describes Pomona as thus employed:

". . . . fissâ modò cortice virgam
"Inserit, et succos alieno præstat alumno."

And VIRGIL admirably distinguishes each process in his second Georgic, *v.* 73, &c.

184. *Now mingling*] See ADDITIONAL NOTE VII. [A.]

186. . . . . *the kindred scion*] See ADDITIONAL NOTE VII. [B.]

188. *Slow, tomb'd in earth*]

". . . . quæ seminibus jactis se sustulit arbos,
"Tarda venit."—VIRGIL.

192. *Far different these*] See ADDITIONAL NOTE VII. [C.]

194. . . . . *with ready-bearing spray*] See ADDITIONAL NOTE VII. [D.]

195. *Or bid December bloom*] See ADDITIONAL NOTE VII. [E.]

196. *Hence Cerasus*] From the bark of the cherry-tree (Prunus cerasus) exudes a gum not inferior to Gum Arabic. Hasselquist relates that more than one hundred men sustained a two months' siege, supported by this food only.

199. . . . . *the blue-eyed host*]

". . . . the shining plum,
"With a fine bluish mist of animals
"Clouded."—THOMSON.

It has, however, been lately asserted, that these supposed insects are parasitic fungi.

200. *E'en Albion's Apple*] The proportion of red in the blossom of the Crab, the parent of all our valuable varieties, is the greatest, the codlin alone excepted: and this proportion lessens (the leaves at the same time becoming larger and paler) as the fruit is sweeter and more insipid. Nor is this surprising, when we consider the effect of acid on the blue part of the vegetable green, and that the same vessels, which supply the flowers, appear afterwards to nourish the fruit. The thorns on the wild crab are lost by cultivation.

204. *Disarm'd alike*] The Pear loses its thorns in the cultured varieties. Its snow-white tufted bloom, and

light green downy leaves, contrasted with the bright hue of the redstreak and other cider apples, equally red in flower and in fruit, renders the borders of Worcester and Herefordshire a perfect paradise; when the eye views

"One boundless blush, one white empurpled shower
"Of mingled blossoms."—THOMSON.

These may be said to constitute a second course for the bees, after their earlier spring feast on the bloom of the currants, gooseberries, and all the varieties of wall fruit.

208. *Ah! here no Nestor*]
"Pomaque degenerant succos oblita priores;
"Et turpes avibus prædam fert uva racemos."—VIROIL.
See ADDITIONAL NOTE VII. [F.]

215. . . . . *and blossom in decay*] See ADDITIONAL NOTE VII. [G.]

217. *When the rough Gourd*] See ADDITIONAL NOTE VIII.

228. *Two wood-nymphs*] The common Laurel (Prunus lauro-cerasus) was first brought to us from the Levant, and makes a close shade with its broad evergreen foliage: but the Portugal Laurel (Pr. Lusitanica) is far more brilliant, and fragrant when in bloom, being covered with long racemes of white flowers, appearing like silver lace.

238. . . . . *bright-hair'd Chloris*]
"Chloris eram Nympha campi felicis . . . .
"Est mihi fæcundus dotalibus hortus in agris,
"Aura fovit."—OVID.

243. *Like halcyons*]
"Perque dies placidos hiberno tempore septem
"Incubat Halcyone, pendentibus æquore nidis.
"Tum via tuta maris."—*Ibid.*

250. *Ye youths advent'rous*] The term *youths* in the text is not strictly just; for Mr. WILDMAN assures us that a swarm consists of bees of all ages, the older ones being distinguishable by their redder hue. This emigration takes place sooner or later, according to the fruitfulness of the hive, and the increasing heat of the weather, from the middle of May, to the beginning of July. The later swarms are little valued, and can seldom collect sufficient honey to support them throughout the winter.

258. . . . . *with hurried step*] For several days before swarming, the bees may be seen running in crowds over the top of the hive, and hanging in clusters from the board; but the most certain sign of their speedy flight is, that they refrain from gathering honey or farina, though the weather be ever so inviting.—WILDMAN.

264. *E'en the dull Drone*] Another sign of an approaching swarm is the appearance of a great number of drones; probably for this reason, that their later hatching-time coincides with the swarming season; and it is necessary that several of them should accompany the colonists for the purpose of impregnation.

270. *Hark! the shrill clarion sounds*] For several nights before a swarm sallies forth, the bees make a peculiar humming noise, of which authors give very different accounts, and ascribe to as various sources. It is generally compared to the sound of a small trumpet; and by Mr. HUNTER to the lower A of the treble in the pianoforte. It is readily distinguished by those who are accustomed to hear it. Is this the sound emitted by perfect queens, on emerging from their cells, as described by Mr. HUBER, in his Observations on Bees, p. 187, &c.?

284. *Till ripening Phœbus*] The time of swarming depends on the warmth of the air, and is usually betwixt ten and two, never before nine in the morning, and seldom later than three in the afternoon.

287. *With course retraced*] Not only a sudden shower, but even a dark cloud passing over them, will drive a swarm home again. They are indeed particularly apt to rise after a storm, and for this obvious reason; that, the air being then sultry, and themselves crowded within for shelter, they feel more completely the inconvenience of their situation, and seek an immediate remedy.

289. *Hush'd as the boding calm*] Immediately before the emigrants take wing, there is usually an uncommon silence in the hive; probably while they are filling their honey-bags from the cells, as a provision against bad weather. Mr. HUNTER accordingly found, on killing several of these insects, that the crops of those which came away were quite full, while those that stayed had a much smaller quantity.—*Philosophical Transactions*, 1792.

296. *Ten thousand shuttles*] The bees, in the act of swarming, appear like so many shuttles shot through a weaver's loom. The extreme rapidity of their flight leaving a continued impression on the retina of the eye, a thread seems attached to each shuttle, like the long white train of the meteors, called shooting stars, and the complete circle of fire, which is seen when a lighted stick or torch is whirled briskly round.

305. *Her far-stretch'd ken*] Contrary to the poet's opinion of insect vision, "whose feeble ray scarce spreads an inch around," it will be found that the structure of their eye is best calculated for distant view; but of this hereafter.

310. *The light Laburnum*] It is not here meant to insinuate any particular predilection of the bees for this tree; but that, being an inmate of most gardens, it affords the swarm a ready and obvious asylum.

315. *Round the fine twig*]
. . . . "jamque arbore summâ
"Confluere, et lentis uvam demittere ramis."—VIRGIL.
When suspended from the bough, or at other times of taking their repose, the bees hang from each other, each bee taking hold of the hinder legs of the one next above it, thus forming, as it were, a perfect grape-like cluster, or twined in living garlands. Even then, as SWAMMERDAM observes, they can fly off from the bunch, and perch on it again, or make their way out from the very centre of the cluster, and rush into the air, though apparently so closely clung together. This mode of suspension, so voluntarily adopted, must be agreeable to them, though the uppermost bees evidently bear the weight of all the rest. Mr. WILDMAN suggests their having a power of distending themselves with air, like fishes, to render themselves more buoyant.

317. *While the keen scouts*] See ADDITIONAL NOTE IX.

322. *A straw-built cot*] Straw hives are almost universally preferred, as least liable to be overheated by the sun's rays, and as the best security against cold; though Mr. BONNER, an eminent bee-master in Scotland, proposes to have them made of earthenware.

324. *And scents*]
". . . . huc tu jussos adsperge sapores,
"Trita melisphylla."—VIRGIL.
However long and generally it has been practised, Mr. WILDMAN strongly reprobates the custom of *dressing* the hives with balm, bean-tops, fennel, &c., or smearing them with cream and honey, as not only useless, but troubling the bees to make them clean again.

325. *Swept from the bough*] The methods of hiving swarms are too well known to require the least comment. Suffice it to say that, the bees having been swept from the branch into the hive, this should be shaded from the sun with cloths, or boughs, and suffered to remain near the place till evening, when, in a state of sleep, and all the stragglers safely housed, its tenants may be removed to the apiary. The branch should also be rubbed with wormwood, or smoked with disagreeable fumes, to drive away all remaining loiterers.

331. *Screen'd from the east*] Mr. WILDMAN recommends a south-west aspect for the apiary, as not tempting the labourers to emerge too early, and as affording them a later light to find their way home in the evening.

339. *Thus Gallic Charles*] See ADDITIONAL NOTE X.

373. *Teaching too well*] Mr. BURKE has somewhere emphatically compared Bigotry and Scepticism, or Despotism and Anarchy, to the extreme points of a circle's segment, which, while they apparently recede, meet at least in a single point.

389. *When by a second tyrant's*] By his no less impolitic than unjust revocation of the Edict of Nantes, LOUIS XIV. lost near 600,000 of his most useful subjects; who carrying their wealth, industry, and ingenuity into Holland, Germany, and Great Britain, enabled those countries to cope with France in her silk, and other valuable manufactures. Many of them enlisted under the banners of our third WILLIAM, and assisted in establishing the glorious Revolution.

399. *Nor blush, ye Britons*] The reader will recollect the dreadful anathemas pronounced, a few years since, against this country from the pulpits of France by those very ecclesiastics, who, during the Reign of Terror at home, most gladly took refuge here; who owe existence itself to the generosity of Englishmen; and whose sacred order, as well as high rank in that order, should have taught them to breathe a very different language.

421. *Now shrill below*] Before the after-swarms a singular noise is heard, sometimes in a shrill, and sometimes a deeper key; most probably according to the distance, whence the sound proceeds. Both BUTLER and WOOLRIDGE ascribe it to a parley betwixt the old and young queens, the latter at the bottom of the hive requesting leave to emigrate, and the former answering in her base note from the top. Even Mr. WILDMAN supposes it to arise from a contest betwixt the queens which shall sally forth; and accounts for its less frequency before the first swarm from the young chief being then in her embryo state. All this, however, seems merely theoretical.

429. *For late*] An instance of this kind, which fell under the author's observation, will be found in Additional Note IX. He is now enabled to add another still more satisfactory: for, the very mild winter of 1806–7 having exhausted one of his hives by famine, he renewed the experiment, and with the same success; the bees of another stall in the same garden taking possession of it. On endeavouring to raise the hive, to give them more ready admission, he found it already fast glued to the floor; a clear proof of premeditation.

437. *So mourn'd*]

"Pastor Aristæus, fugiens Peneïa Tempe,
"Amissis, ut fama, apibus morboque fameque,
"Tristis ad extremi sacrum caput adstitit amnis,
"Multa querens;" &c.

Thus begins a most beautiful episode at the close of VIRGIL'S fourth Georgic.

449. . . . . *with balm and bean-tops*] See Note to line 324.

451. . . . . *the tinkling brass*]

"Tinnitusque cie, et Matris quate cymbala circum."—VIRGIL.

It is not easy to say on what principle the long established custom of beating on kettles, &c. to promote the settling of swarms, is founded. If, as some have supposed, the bees mistake it for thunder, and the harbinger of a storm, they should rather return to the mother hive. Or if, according to others, it drowns the hum of their queen, it would only tend to keep up their dispersion. Most probably it was first used as a signal to the neighbours that a swarm was up, and afterwards continued by habit only. That it is not *necessary* is amply proved by every summer's experience. The author himself found a swarm fully settled on a bush in his garden, at so late an hour that it must have lodged there near half a day at least.

452. *Or clouds*]

"Pulveris exigui jactu compressa quiescent."—VIRGIL.

However absurd it may seem to think of bringing back a roving party by pelting them, swarms, when soaring too high, are certainly made to descend by throwing up handfuls of dust or sand. Most likely the bees mistake these for hail, or rain.

453. *Cornubia's sons*] Mr. POLWHELE, in his History of Cornwall, speaks of an ancient superstition there of invoking, at the time of swarming, *Browney*, a familiar spirit, whose peculiar province is to protect the hive. The Cornish were probably accustomed to sacrifice to this spirit, as the inhabitants of Scotland did; and they cry *Browney, Browney*, from a belief that this invocation will prevent the bees from returning to their former hive, and make them pitch immediately. Possibly, in the very act of hiving, such a succession of monotonous sounds may lull the bees to rest; as the good housewives of North Wales induce, or fancy they induce, their swarms to hive the sooner by singing, or whistling some drawling tune. Yet this seems hardly necessary when the queen is fairly housed.

457. *Sinks their lov'd queen*] The return of a swarm without settling will be always found to arise from the want of a chief to head them. She may have fallen to the ground from some defect in her wings, or from being disabled by some accident; and in this case she may be discovered on the grass, with invariably several attendants, whom nothing but violence can separate from her.

462. *And e'en in death*] See ADDITIONAL NOTE XI.

467. *What dares not curious man?*] See ADDITIONAL NOTE XII.

477. *Not more distracted*] The attempt to assassinate the late amiable and justly beloved King of Poland, with his adventures, and almost miraculous escape, are given at full length in Mr. COXE'S Travels through that country, Vol. I. p. 29, &c. They have also been lately introduced in the celebrated novel, *Thaddeus of Warsaw*, the names only being changed.

510. *With close-sheath'd sting*] Bees, when swarming, are little disposed to sting, of which Mr. THORLEY gives a remarkable instance. A servant girl assisting to hold the hive while he dislodged the bees from a codlin tree, had her waist and breast up to the very chin covered with those insects. Earnestly charging her to remain perfectly still, he seized the queen from among the crowd, and put her into the hive together with a few common bees. The rest speedily followed, and in a few minutes not a bee remained upon her, nor had she a single sting. Much, however, depends on the absence of irritation; for the author well remembers a circumstance of a more serious result; where, a swarm having settled round the pendent branch of a larch-tree, and its long tufts of narrow leaves flapping them as the bough was shaken, the woman, who hived them, received about thirty stings.

511. *Such was the spell*] Mr. WILDMAN'S account of his management of bees differs not in subtstance from what is here said in the text. But while he boasts the long and anxious attention by which his dexterity was acquired, he justly laments the many hives that may be destroyed by the attempts of new and inexperienced imitators. Nor must we consider him as the first labourer in this field of bold ingenuity. The well-known Naturalist, SWAMMERDAM, fastened a mother bee by one of her legs to a pole, and the whole swarm followed the pole wherever the bearer pleased. And Mr. REAUMUR quotes from Father LABBAT'S Travels an instance of a bee-man who exhibited a variety of similar tricks, but cunningly concealed the source of his dexterity.—*Natural History of Bees*, p. 17.

(*To be continued.*

Correspondence.

*** *These columns are open to Subscribers, so that their queries, replies, correspondence, and experiences, may be* fully *and* faithfully *recorded; and for the discussion of all theories and systems in Bee-culture, and of the relative merits of all hives and appurtenances, that the truth regarding them may be ascertained. The Editor, therefore, must not be expected to coincide with all the views expressed by the various writers. All Correspondence is addressed to the Editor.*

DR. EVANS'S POEM OF BEES.

I am glad to see that you intend publishing in a separate book a reprint of the beautiful Poem on Bees by Dr. Evans, and I should like my name put down for a copy.

A few years ago, an opportunity presented of becoming the owner of an extensive library of bee books, which I embraced. Among the collection is a copy of this poem in three parts, 4to size, printed at Shrewsbury in 1806. Same priced at 7*s.* a part.

On a fly-leaf at the commencement is a paragraph in handwriting, of which the following is a copy :—

'The manuscript for the completion of this poem was all prepared for the press, and is now in the possession of the family; being originally published in parts, at great intervals of time, it did not sell well, and that prevented Dr. Evans from publishing the remainder.'

When I came into possession of this book, I used considerable endeavours to find out some descendants of Dr. Evans family, who might be the possessors of the fourth, and unprinted part, but without avail. Had I been successful, I intended to have issued the work in a complete form.

On my becoming the possessor of the valuable collection which I now have, a stipulation was made that it should be kept entire, and not subjected to the liability of being rendered imperfect by lending books therefrom. Every one knows that considerable loss and damage sometimes occur from the loan of books. I may say that I often have had to regret this stipulation because I have had to refuse so many excellent friends upon whose punctuality and care I could so confidently rely.

I would further add that the copy referred to is the more valuable from having the author's autograph on the title-page. — Alfred Neighbour, 149 *Regent Street, London, W.*

THE NADIRING SYSTEM.

In reply to the querist of last month, signing himself 'Nethermost,' I have much pleasure in following in the wake of our chief, and aiding to let in some light on a subject as to which I quite agree with your correspondent, some haziness of opinion has prevailed even to the enveloping of the preceptor's chair. From the Pagden point of view, a nadir has been looked upon as an adjunct from which honey was to be obtained, somewhat after the fashion of the side boxes in Nutt's Collateral System, whereas every tyro in storifying knows that the nadir is simply an extension of breeding space, and the most honeyless portion of the hive.

Your correspondent concentrates his lack of information in the following sentence: 'What I therefore want to elicit is, what is to be understood by Nadiring?' and having nadired, what is to be done when nadirs ought to be taken away, and what ought to be done with them? Which I will endeavour to answer.

'Nadiring' is a term used in connexion with 'storifying,' a system of bee-keeping by which the hive employed, instead of consisting of a single roomy chamber as is usually the case, is composed of a series of lesser apartments, sections, or stories, set one upon the other with free 'communication between, hence the name storifying.' The system is based upon, or accommodates, an unvarying procedure with bees, that of extending their brood combs in a downward, as it is their practice to store their honey in the upper and in an upward direction in their hives. Each addition placed below the original stock box is termed a nadir, the act of so placing nadiring; each progressive addition on top of stock box or super so placing, supering.

The advantages of the storifying system are manifold, as exemplified in that branch of it known as the Stewarton. At the close of the honey harvest and the consequent removal of the supers, the production of the queen gradually wanes, and as the brood is hatched out in the lowermost point, the bees bit by bit abandon these outposts and fall back towards their centre, so that the lower nadir or nadirs, as the case may be, by the end of autumn are left empty, and best removed, slides run in, the bottom covered by a thin octagon board or stout paper, and suspended in a dry, airy garret till the following season. A shallow eke, 2 inches deep, having been meantime substituted below the stock for the better circulation of pure air.

At the commencement of breeding in spring the eke is removed, and the smallness of the stock aids the better concentration of the heat, and the temperature is consequently economically raised by the workers, which facilitates the more rapid production of brood, and the hive by-and-by becomes full, when one of the autumnal removed nadirs is replaced in position, the queen and her train gratefully descend and take possession; so that by the commencement of the honey harvest a large population of honey gatherers are ready waiting to mount up into the one or two supers then given, and comb-building and storing progresses rapidly therein, with a gradual and skilled extension of super and nadir room in advance of their wants and suitable to their several cases; the fertility of the queen and the acquisitive principle in her offspring are stimulated to the uttermost, and so unchecked that swarming is unthought of; and should the season prove auspicious a harvest is reaped of which the fixist never dreams.

Instead of returning the nadir to its original position in spring, if an early swarm is wished from the particular stock of which it formed a part, then it is withheld and does good service in securing that or any other swarm. When so peopled, a super is placed at once upon it, and the side entrances opened into which a detachment of workers readily ascend, and from the contents of their distended honey bags rapidly fabricate comb. The queen, finding so ex-

tensive an area of empty cells at command in what was the nethermost of the old, now the uppermost of the new stock, is too much occupied to think of following. It may be as well here to remark the propriety of excising any drone comb before introducing the swarm. A second super may shortly be required to be set on the top of the first, with all the intervening slides drawn; and it may be mentioned that during the honey flow, for obvious reasons, it is always best to super first and nadir afterwards, which nadir can now be supplied in the shape of an empty box, into the descending new combs of which the queen will rapidly deposit eggs.

Your correspondent 'Nethermost's' 'old friend Pettigrew' may possibly enlighten your readers as to how he disposes of the contents of his nadirs, more properly speaking ekes; in the meantime, till we have 'more light' on that point, we may not unnaturally assume, he being an out-and-out advocate of 'fixism,' that such extensive stretches of new combs, got up at so great an outlay of time and honied material, are ruthlessly crushed up in the melting pot.

It is fresh in the present writer's recollection in noviciate days, before he had put together his first frame, his rescuing the cottager's driven bees from the brimstone pit, at an outlay of half-a-crown per stock, and on seeing the children running about with these large eked empty comb cakes as playthings, and being tempted to offer another half-a-crown for their possession, which elicited such glances from the bee-keeper to his better half, plainly expressive of the idea that their visitor's purse was deeper than his wisdom; but there was manifestly a change of opinion when the bee-laden cottager arrived in the afternoon, on seeing the empty comb parcel opened out, and its contents cut into neat squares, and by dipping the lower side of the moveable bars into boiling wax, and attaching the squares thereto were put back in their place, box after box being peopled from the respective swarms which emptied the feeding bottles set thereon, it began to dawn upon him that from the wreck and ruin of one hive and system, a newer and better state of things could easily arise. Such are the advantages of 'mobilism' over 'fixism.'—A Renfrewshire Bee-keeper.

REV. CHARLES BUTLER, AND HIS TEACHINGS.*

I was much pleased to read in your last issue a short, though concise, biographical and bibliographical notice of the Rev. Charles Butler and his work, *The Feminine Monarchy*. It seems but just that in the columns of the *British Bee Journal* the precursors of the science in which we take an interest should have a due recognition of their services and a right apportionment of the merit to which they are entitled. When we remember the remote time when Butler first published the fruits of his study of the nature and properties of the honey-bee—namely, above 250 years ago—I think all will be happy to accord to him a high and an honoured place in their respect and gratitude. If you, Sir, consider yourself justified at the present day,—when the minds of men are aroused, when learned works are written, and when anatomical plates portraying all the minutiæ of the interior and exterior of the bee are sent forth into the world,—to write a series of articles entitled 'The *Mysteries* of the Bee-hive,' how does it become us to beware of being too critical when noting the first endeavours of the pioneers of apiculture to emerge from darkness into light. It is true that Butler had his predecessors, too. Aristotle, Pliny, Varro, Virgil, and a host of others, with earnest zeal and patient investigation, had striven to penetrate the mysteries of the science; but, though not disinclined to recognise our indebtedness to them for much that is true, profitable, and practical, we must admit that their knowledge of the physiology of the bee was sadly meagre. A whole continent of facts lay undiscovered before them. The most elementary principles respecting the sexes and generation of bees appear to have been to them things unknown. And from the time of these ancient Greek and Latin writers to that of Butler what a dark gulf intervenes! We have in patristic writers a few weird, indistinct records of bees circling around the cradle and settling on the mouths of men who distinguished themselves in after-life in poetry and in eloquence; and we read in monkish chronicles legends of strange miracles connected with honey-bees. We know that in these dark ages bees must have been extensively cultivated; we remember that the taxes of the country were, in many parts, paid by weight of honey; and we are aware that mead, or metheglin, was the favourite beverage of the monarch in his palace and the labourer in his cot. But during that long and dreary time what slow progress was made in any intimate knowledge of the properties of the bee!

The first edition of Butler's work was published about six years after the death of Queen Elizabeth; and as we note that that age was fruitful in orators and statesmen, in poets and dramatists, in bold soldiers and skilful sailors, we are pleased to be able to say that an earnest and painstaking bee-master came to the front, who, by his patient investigation, was able to brush aside many of the crude vagaries of the past ages, and by demonstrating the true sexes of bees to reach a hill-top whence he was enabled to look forward hopefully to future discoveries. In the preface to his work he says that he knows that his views will for a time 'lie in obscurity;' but, with the prescient hopefulness of a true enthusiast, he asserts that 'they will in time travel into the most remote parts of this great kingdom of Great Britain, and be entertained of all sorts, both learned and unlearned.'

To arrive at a full knowledge of the extent of our obligations to Butler for the results of his investigations into the nature of bees, it is desirable to particularise a few of the strange opinions and whimsical ideas entertained by ancient writers. What were their ideas respecting the generation of bees? Aristotle and Varro considered that they were derived from the putrid carcass of an ox. Virgil, too, at the end of the fourth Georgic, gives expression to

* *The Feminine Monarchie; or, the History of Bees: showing their admirable Nature and Properties, their Generation and Colonies, their Government, Loyalty, Art, Industry, Enemies, Wars, Magnanimity, &c* Written out of experience by Charles Butler, Magd. 1634. Sm. 4to.

the same opinion, which opinion is thus expressed by the poet Evans:—

'Well might the Bard, on fancy's frolic wing,
Bid from fresh flowers enascent myriads spring,
Raise genial ferment in the slaughter'd steer,
And people thence his insect-teeming year.'

It is astonishing to note the vitality of an error. Though Butler had raised his voice against this hypothesis, it was not exploded, for even in comparatively modern times—viz., in 1720—we find a French author seriously attempting to prove that the crude wax which the bees bring home on their knees becomes vivified in the hive, and the maggots which are produced from the wax eventually generate into bees. And if the ancients had no clear idea of the generation of bees, they were equally in the dark as to their sexes. They considered the chief of the hive to be masculine. Aristotle calls the queen βασιλευς (a king); Latin writers, *Rex;* Shakespeare has it, 'They have a *king;*' and many years came and went before the right of the queen was firmly established and universally allowed.

Now let us turn to Butler. Butler's mind was many-sided. He wrote on many subjects, and in all he excelled. His work on the Principles of Music was that of a master, and was well entitled to the high eulogium passed on it by Dr. Burney. His book on Tropes and Figures found its way into the schools, and, as he says, 'into the university itself;' and I have before me his work entitled 'Oratoria,' evidently the work of a scholar of the greatest profundity. His *Feminine Monarchy* bears on every page his intimate acquaintance with the writings of his predecessors; it bristles with quotations; it is almost turgid with Latinity. But the particular merit of Butler is his great desire to state what he has, or rather I should say what he fancies he has, observed with his own eyes. The motto that he has placed on the title-page is a line from Plautus to the effect 'that one ocular demonstration is worth a dozen hearsays.' On the reverse of the title-page (which I regret, Sir, is wanting in your copy) is a rough wood-engraving representing the interior of a hive, and showing, what he styles, '*Quatuor apum ordines,*' (the four orders of bees). The hive is surrounded with the legend, '*Solertia et labore,*' (by wit and industry). The four orders are: 1. *Princeps*, or chief, at the top of the hive, with a kingly crown on the head; 2, *Duces*, leaders or captains; 3, *Plebs*, ordinary bees; and 4, *Inertes fuci* (sluggish drones), who are outside the hive, falling into dark space with the melancholy wail, '*Socordiam luimus*' (we are expiating our laziness).

Now Butler is the first who has established the fact that this 'Princeps' is feminine. His work is entitled *The* FEMININE *Monarchy.* He, however, was not so far advanced in his knowledge of the science as to say that the queen is the mother of the whole community; his idea is that the queen-bees bear only lady-bees, and that in special cells which, 'for the most part, are outside of the combs. For though it be fit for princes to be near their chief cities, yet do they not love to be pestered in the midst of them.' These cells are 'larger than the rest, to show that subjects' houses should not match their sovereign's in greatness.' Neither does he incline to the opinion that worker-bees are undeveloped females: for he says, 'Honey-bees are the females, by whom the bees of both sexes (first the females, and then the males) are bred.' Our surprise is not that Butler in his long-ago days made this statement, but we note with some degree of wonder that Wildman,—living in comparatively modern days, the most practised bee-master of his time, with all the knowledge that had accumulated since the days of Butler,—maintained the opinion, that queen-bees and worker-bees produced bees after their respective kinds; and by many plausible experiments he sought to fortify his idea.

Butler's second order is called *duces*, or leaders. Shakespeare says they have 'officers of sorts.' They are thus described:—

'Besides their sovereign the bees have also subordinate governors and leaders, not inaptly resembling captains and colonels of soldiers; for difference from the rest they bear for their crest a tuft or tassel, in some coloured yellow, in some murrey, in manner of a plume,'* &c., &c.

Who or what are these Nature-stamped lords of the bee creation? Have you, O reader, observed any such, with a more majestic stride, a more apparent self-consciousness, a more exalted manner, than their fellows? If, mayhap, you have done so, then have you seen those that are the officers, the leaders, the directors, that teach—

'The art of order to a peopled kingdom.'

We come now to the Drones. If the ancients knew nothing respecting the generation of bees, we may rest assured that they must have been puzzled by the presence of drones. We have no space here to record their views respecting drones; suffice it to say that they were all abroad as to their true functions. But Butler has the honour of demonstrating that the drone is the male-bee, and he proves this not only by cogent reasons, but also by anatomical investigations. I believe that the discovery that the drone is the 'father of the hive' is generally ascribed to Maraldi and Swammerdam. Butler, without doubt, can well establish a priority.

There is only one matter more to which I desire to allude, viz., the age which bees attain. Virgil says that they may live seven years—

'Neque enim plus septima ducitur æstas.'

Aristotle gives them a longer period. Butler quietly says, 'The truth is, a bee is but a year's bird, with

* One word as to the spelling adopted by Butler in this work and in his *Principles of Music.* Your extract, given last month, does him scant justice; in fact, as printed, it looks barbarous and uncouth. Now, there is a refinement, a delicacy, and a harmony in the adopted orthography, and the reader is soon reconciled to its peculiarities and abbreviations. The key to his method is, that the aspirate *h* is noted by a dash through the preceding consonant; and where *e* is silent or quiescent and merely serves to produce the antecedent vowel it is indicated by an inverted comma. As assimilation of spelling to sound has been the aim of men of mind in all ages, am I not justified in adducing Mr. Butler's attempt as another proof of his independency of thought and clear-sightedness? In turning over the pages of the copy before me, I was absolutely startled to come across some MS. written in conformity with all the specialities adopted in the book. It almost appeared as if I was confronted with Butler himself.

some advantage.' We are not all at the present day in harmony on this matter; but we must allow that Butler has very nearly hit the mark.

I am afraid, Sir, I have exhausted your patience; but I trust that I have established the claim of Butler to a lofty position among bee-keepers; that we are under a deep debt of gratitude to him for all his teachings; and that it is our duty to ascribe to him all the honour he deserves for the discoveries he has made. May his example stimulate others, with leisure, with learning, and with patience, to endeavour to reveal the yet unsolved mysteries of apiculture! Continental bee-keepers have honoured Dzierzon with the title of '*le père de l'apiculture progressive*,' what epithet shall we bestow on our distinguished English apiarian, the Rev. Charles Butler? — GEORGE HENDERSON, *Ealing*.

INTRODUCTION OR EARLY HISTORY OF BEES AND HONEY.

(*Continued from page* 167.)

About the commencement of the Christian era (50 A.D.), Columella, who was a very accurate observer, and exhibited considerable genius as a naturalist, made some curious and useful remarks upon bees in his treatise, *De Re Rusticâ*; but Columella, like Virgil, appears to have acquiesced in and copied the errors of his predecessors; and he states that the idea of deriving emolument from the labours of the bee was first entertained in Greece, after the introduction of the colony which accompanied Cecrops from Egypt to Attica, by whom bees were established upon Mount Hymettus.

Columella must have handled queen bees, for he was the first to state the fact that a queen cannot sting a human being, and he gives a description of two kinds of bees.

After him the elder Pliny gave a sanction to the opinions which he found prevalent, and added to them others of his own. But Pliny, though a laborious compiler, occupied himself with too great a variety of pursuits to attain excellence in any. As a naturalist, however, he is happy in some of his descriptions. To him we are indebted for the transmission to us of all that was actually known, or supposed to be known, of natural history in his day. I say—supposed to be known; for many of the opinions and conjectures which he has put forth have been shown by modern investigators to be ill founded. The notions of the ancients respecting natural philosophy rested on no rational foundation; ideas of charms and of planetary influence directed their most important pursuits, and led to the formation of very absurd theories. When Pliny recommends that the dust in which a mule has rolled should be sprinkled on persons who are violently in love, as a sovereign remedy for amatory ardour, and gravely tells us that snakes are sometimes produced from the human medulla, with many frivolous conceits of the like kind, we may safely pronounce that he or his contemporaries, or both, were very credulous, and that the science of experimental philosophy was scarcely cultivated among them.

Melissus, king of Crete, was the first who invented and taught the use of bee-hives. I have a list of eighty ancient authors upon bees.

After the compilation of Pliny's vast compendium, nearly fourteen hundred years rolled away without anything being done for entomology or for natural history in general. The Arabians, who alone preserved a glimmer of science during those dark ages that succeeded the fall of the Roman Empire, cultivated natural history only as a branch of medicine, and from their writings little can be gleaned in furtherance of our present object.

On the revival of learning in the 15th century, and after the discovery of the art of printing, various editions were published of the works on natural history, written by the fathers of that science.

Thomas Hyll in 1568 produced his first work on bees. Sir Edward Watton, Conrade Gesner, and others, produced conjointly a work on insects, the manuscripts of which came into the possession of Dr. Thomas Penry, an eminent physician and botanist in the reign of Queen Elizabeth (A.D. 1570). After devoting fifteen years to the improvement of the work, the doctor died, and the unfinished manuscripts were purchased at a considerable price by Mouffet, a contemporary English physician of singular learning, who with great labour and at great expense arranged, enlarged, and completed the work. When nearly ready for the press, he also died, and the papers, after lying buried in dust and obscurity for several years, at last fell into the hands of Sir Theodore Mayerne (Baron d'Aubone), a court physician in the time of Charles I., who gave them to the world in 1634. The arrangement of this work is defective; but, for the period in which it was written, it is a very complete and respectable treatise on entomology. It was highly recommended by Haller; and as a storehouse of ancient entomological lore it has not yet lost its utility. Its pages are embellished with nearly 500 woodcuts. An English translation of it was published in 1658. Prince Frederic Cesi, President of the Roman Academy of Sciences, wrote a treatise upon bees; but the work has not been preserved, and we are unacquainted with its merits. —WM. CARR, *Newton Heath Apiary, near Manchester.*

(*To be continued.*)

CHEAP HIVES.

Will you kindly allow me a little space in your *Journal* to make a few remarks with reference to a rather sweeping assertion made by Mr. J. M. Hooker in the January number of the *British Bee Journal*, with reference to cheap bar-frame hives?

After describing his own hive, and pointing out its excellences, he gives the price of the same, and then states, 'The price may appear high compared with the so-called cheap hives, which to my mind are dear at a gift,' and so on. Now, I cannot of course deny that some cheap hives may answer to this description, but there are different kinds of cheap hives; and being a maker of low-priced hives, having lately brought out the 'Excelsior,' as advertised in this *Journal*, at 6*s.* 6*d.*, I can guarantee it to be as strongly made as many of the high-priced hives, the frames being made of as stout material,

and they are mortised, glued, and bradded together. I do not pretend to say that there is the elaborate finish, or all the conveniences to be found in high-class hives at six times the price, but with regard to strength of frames, exactness in size of frames, and ease of manipulation, they will compare favourably with any high-priced hive. I do not wish to say a word in disparagement of high-priced hives; they are no doubt the correct thing for people with plenty of cash in their pockets; but I fancy that our cottagers, about whose advancement in bee culture some of your correspondents appear so interested, are not likely to possess them, from the fact that they have not the means to invest in such expensive articles.

The most likely thing, I fancy, to induce people of limited means to use bar-frame hives, is to put before them a complete hive, soundly made, at as near the price of the straw skep as it can possibly be produced.

I do not for a moment suppose that Mr. Hooker intended any harm by his remarks, but as they might lead some people to think that there was nothing worth having between the straw skep and the bar frame at 35*s.* or 45*s.* each, I have troubled you with these few lines.—H. J. Fuggle.

NOTES ON SEASON IN ARGYLESHIRE.

During the first six months we had very backward weather, so much so that many hives perished; but the latter end of June and whole of July things improved very rapidly, and by the month of September those who had paid attention to their hives and bees were amply rewarded by large stores of honey. Never had we a finer bloom of heather on the Kilmun hills, to which my bees resorted in great numbers, although on their passage they had to cross and recross, from and to their hives, the Holy Loch (an arm of the Firth of Clyde), about 1½ mile broad, and, as a result, lots of heather honey. By a typographical error in your last number, page 169, Kilmun and Ben Lawers were spelled 'Kilmaurs' and 'Ben Lawes.'

Thanks to the almost universal use of the quilt, we are now reaping the benefit of its use during this wet weather. The season since September has been very trying, and during last month we had no fewer than 24 wet days; and so far as this one has gone, it bids fair to rival it, and I can truly say, bees in old straw skeps must be well flooded by this time; but your own and the 'Lanarkshire Bee-keeper's' substantial-made hives have kept my bees and combs 'as dry as a whistle.' We look forward to a good season. Bees lively.—R. J. Bennett, *Glasgow, Jan.* 17, 1877.

THE FLIGHT OF BEES.

Will you be good enough to express my thanks to Mr. Bennett for the information he has given me? As I suppose he may possibly be able to distinguish between the honey gathered by his bees from the Kilmun Hills, and that they obtain from flowers growing in other directions, will he have the kindness to say what is the average weight of honey obtained by a stock at a distance of 1½ miles from their pasture?

On page 168, Mr. Bristow says he has been in the habit of weighing a considerable number of hives once a month, to ascertain the loss of weight during winter months. Will he be good enough to send a paper on the subject to the *Bee Journal?*

It would be interesting to know exactly the influences of temperature on consumption of honey, and also the difference in quantity consumed, by strong and feeble stocks under some conditions, and whether bees consume more during winter if they have an abundance of honey than they do if the supply is scanty.—J. H. Eldridge.

WESTBURY-ON-TRYM BEE-KEEPERS' ASSOCIATION.

The Proposed Tent—The Flight of Bees.

Please accept our thanks for your note and advice contained, which latter, we believe to be sound, and will endeavour to be guided by it. We have seen the notice of your proposed tent in the *Journal*, and think it will be the right thing in the right hands, and we entertain the hope of some day making its acquaintance.

A neighbour who has fourteen stocks is our largest bee-keeper. Three of his stocks were busy carrying in pollen on Monday last the 15th January, and one in a single half inch hive was very active. All his bees gathered from the ivy till very late last season. A wood lying east of their hives abounded in ivy-clad trees, but to reach them they had to cross several fields in a very exposed situation; their method of flight is perhaps worthy of notice. Their line of flight was very observable from their number, and their always taking the same line between two particular trees (in the rear of their hives), going and returning; while crossing the fields they flew close to the ground, rising sharply to clear the hedges in their way, and down again on the other side.

During the last month we have had the pleasure of adding several gentlemen to our list of members. —Charles Chaplin, *Hon. Sec. pro tem.*

MOVEABLE TENT FOR APIARY.

For those who wish to look on in safety at bee manipulation, I would suggest an ordinary umbrella covered with black gauze reaching to the ground all round, and slightly weighted at bottom. Inside this a visitor would be perfectly safe, and could move his or her tent from place to place by simply raising the umbrella until the gauze cleared the ground.—H. Jenner Fust, Jun., *Hill, Gloucestershire.*

A NEW 'COTTAGERS' FEEDER.'

The above has been designed, as its name implies, more especially for the use of those whose means will not admit of the purchase of more expensive articles. It has several advantages over the 'bottle,'

viz. ; (1) It cannot be (accidentally) broken ; (2) nor easily overturned. (3) Not a single bee can get at the food save those for whom it is intended. (4) Not a drop of the food is wasted in applying; and (5) it is the cheapest complete feeder extant.

Although the 'Cottager's Feeder' is intended principally for spring stimulative feeding, it may easily be adapted for use in the autumn months.

To use it.—Place the feeder on a piece of tin or zinc, fill, and cork up tight, place it over the feed hole, and withdraw the tin or zinc.—E. C. Youens, *Tower Cottage, West Hill, Dartford.*

[The Cottagers' Feeder is a plain tube of zinc, or tin, soldered to a much wider flange of disc of similar metal; it is about four inches high, and will hold about a pint. A bung fitting the top makes it tight as a bottle, and as a whole it is exceedingly cheap, and will doubtless be effective.—Ed. *B. B. J.*]

THE SEASON.

Walking in my garden, 11 a.m. to-day—a soft balmy air—wind SSW.—thermometer registering 57° Fahr.—blackbirds, thrushes, skylarks, fieldfares, wren and robin singing melodiously—bees on the wing—I inspected and weighed four hives, and was agreeably surprised; so little honey consumed during this unprecedented mild season.

Date.	Hive.	Gross Weight.	Floor-board and Hive.	Net—Comb, Honey, &c.	Reweighed.	Gross Weight.	Loss.
1876		lbs.	lbs.	lbs.	1877	lbs.	lbs.
Oct. 10	1. Wood, 1876 ...	47	15	32	Jan. 19	42	5
„	2. Nutt's W., 1876	42	18	24	„	35	7
„	3. Glass Collateral, 1876	55	21	34	„	53½	1½
.	4. Payne Straw, 5 years old ...	50	17	33	„	44½	5½

On October 10th they were all remarkably strong, and refused honey offered them daily for a month. Nos. 1 and 3 are now the most thickly inhabited; Nos. 2 and 4 are lively and healthy.—T. H. B.—*Jan.* 19, 1877.

P S.—I should be glad to see similar accounts of consumption of food from other bee-keepers. There are many '*straw hives*' who have lost their inhabitants this season, in this neighbourhood, through wet and loss of queens. Not so with wooden hives.

THE CARR-STEWARTON HIVE.

Mr. Lee writes to say :—'I have adopted a suggestion of the inventor, viz., of doing away with the expensive crown-board in Carr-Stewartons, and making the slot in adapter $\frac{3}{8}$ wide instead of $\frac{3}{16}$.' He further says :—'It is impossible in a piece of wide pine to keep the $\frac{3}{16}$ openings true from the swelling and shrinking of the wood.'

[This is a step in the right direction.—Ed. *B. B. J.*]

'A LANARKSHIRE BEE-KEEPER *VERSUS* MR. PETTIGREW.'

When the January number of the *Journal* came to hand, I at first turned over the leaves to see what its contents were. The first thing I specially noticed was the article with the above heading, and I at once commenced reading it aloud, my audience being one man, one woman, and some children. The man knew nothing whatever of the subject, but what he learned from the article on my reading it; but when I was through he said, 'Well, the man maybe is right, but isn't he in a rage?'—meaning the 'Lanarkshire Bee-keeper.' This remark seemed such a funny climax to what appeared to me a wrathful epistle, that I almost at once resolved to make some strictures on the subject.

The 'Lanarkshire Bee-keeper' is one whom I know nothing about but what I gather from his published writings, and one particular speciality in these is his hostile attacks on Mr. Pettigrew—in fact always so much so as if he were 'in a rage.' In the last article 'A Lanarkshire Bee-keeper' suggests the advisability of Mr. Pettigrew going to 'his bended knees.' The advice is good to all and sundry: indeed it is good, and I hope 'A Lanarkshire Bee-keeper' does not fail to be often there too. But what, Mr. Editor, are you to think of a man giving such advice, and be guilty himself of doing what he —I am presuming the 'Lanarkshire Bee-keeper' is a man—what he unblushingly said he did in the last July number of the *British Bee Journal*, namely, told a deliberate untruth to a neighbour about *pease meal*, or *pease brose?* Wouldn't you be 'apt'—to use his own words—'to call that person a hypocrite, and advise him to go to his bended knees?'

I had seen the writings of 'A Lanarkshire Bee-keeper' before; but not till I saw about the *pease-brose* affair did I form any decided opinion of him; but as to his experience as a bee-keeper, he has evidently a good deal—a pity, therefore, that 'Pettigrew' should press so heavily on his brain.

Of Mr. Pettigrew I know a good deal, but what I have gathered is entirely from his writings and the writings of others. I was not long until I was struck with the beauty of his language, as being free from offensive or ill-tempered expressions, no matter how much he was vilipended; always gentle, bland, courteous, and full of suavity. I never knew the secret of his agreeable style until I learned, as 'A Lanarkshire Bee-keeper' says, that he taught the Word of God, or, in other words, was a Christian man.

In our hard-headed Aberdeenshire there is a saying, that if two persons are seen disputing or discussing about anything, and one of the parties is 'in a rage,' it is presumed that the angry party is in the wrong. Apply this to the above subject.

For the benefit of those who may not have the July number at hand to refer to about the *pease brose*, the substance is, as I understand it,—a beginner troubled 'A Lanarkshire Bee-keeper' by asking many foolish questions about bees, and finding that the latter's bees were ahead of the beginner's, wished to know the reason. The 'Lanarkshire Bee-keeper' said, 'I feed them with *pease brose.*' And one day

(1st of April), on seeing the beginner approaching, he mixed syrup with the pease meal, and laid it on the front of the hives, hoping to make a *fool* of the beginner. As this was the first time he had used such a mixture, I consider he was telling a decided untruth when he was making his friend believe he was in the way of doing it. If my construction is wrong, I'll beg ever so many pardons.—JAMES SHEARER, *Cairnie, Aberdeenshire.*

IS IT RIGHT?

Having been a subscriber to your valuable paper from its commencement, and much interested in the information and instruction it conveys from month to month, I ask leave to make an observation on an article which appeared in the issue of January 1st, written by 'A Lanarkshire Bee-keeper,' and 'setting down' Mr. Pettigrew in no very polite terms or manner.

Now I am by no means writing for the purpose of attempting to 'set up' Mr. Pettigrew or his statements, but I cannot help thinking that our Lanarkshire friend has gone to greater lengths in what he has written about this gentleman than should have appeared in the pages of the *British Bee Journal*. At any rate I can assure you that when I had read the upper paragraph in the second column of page 168 I laid the paper aside for the time being, feeling that if such remarks were the rule instead of the exception in the pages of the *Journal*, the less I saw of it the better. I care not how much one individual condemns the system of bee-management practised by another, for it is by friendly discussions, and interchange of opinions and experiences, that advancement is made in the art of bee-keeping, but I trust that if it be thought necessary to call in question the *genuine religion* of the advocate of any particular system, such statements as appear in the column above mentioned will be left out of the *Journal* and sent privately to the parties concerned. I do not know either Mr. Pettigrew or 'Lanarkshire Bee-keeper,' and have naught but good feeling towards both, my only object in sending this being to add my wish to the desire that has been before expressed in the *Journal*, that bee-keepers will be charitable and courteous in exposing what they consider to be the bad system and mismanagement of others of the same 'craft' or having a similar 'hobby' to their own. Truly, Mr. Editor, we are none of us infallible, and if our religious status can be criticised in your columns some of us will be trembling for what the *Journal* may contain as we take it from the postman, instead of, as at present, hailing it with delight.—AN OXFORDSHIRE BEE-KEEPER.

SUPERS.

I have been trying to arrange a convenient super, and venture to send you the result, in hopes that it may be found to suit the wants of some bee-keepers.

Make a box 4 inches deep, without top or bottom (having wooden ends, and double glass sides a quarter of an inch deeper than the ends), capable of holding as many sections of any given size as may be thought desirable. Fill this box with sections having ends 2 inches, bottom rail 1 inch, and top rail 1½ inch wide, the latter grooved to receive Stewarton slides, and projecting at each end a quarter of an inch, so as to rest upon the front and back of the box, like bar-frames. These sections being self-supporting enable the whole to be lifted off at once, whether used with or without an adapting-board; and the Stewarton slides admit of storifying to any extent, while the ends, remaining the full width, and touching the back and front of the box, and each other, keep all in place and protect the honeycomb when formed.

A super of this kind may be made of any size, and with a single or double row of sections; if the latter, a board, half an inch thick, reaching from side to side of the box, must be fastened in the centre, for the projecting top rails to rest upon. It can be manipulated with great ease, and if the sides of the box be attached by screws no difficulty will be found in removing the sections, even if the combs be not built quite true.—H. JENNER FUST, Jun., *Hill, Gloucestershire.*

Echoes from the Hives.

Wokingham, Jan. 5th, 1877.—'I have much pleasure in sending my subscription (10*s.* 6*d.*) to *British Bee Journal* for 1877, sincerely hoping that good health, and great usefulness in the work you have in hand and at heart, may be yours for this year. Thanking you for all kind and prompt attention in the past year, I shall continue to introduce and make known your *Journal* to others.'—J. GADD.

The Boys' Home, Spanish Road, Wandsworth, S.W., Jan. 6th, 1877.—'My carpenter made me 12 hives from the Prize-hive I bought of you at the Palace, 1875. If I send you one down will you alter it, &c., to the present style, *see* page 156, January number? I think the country greatly indebted to you for the labour you have bestowed in the good cause. I am giving my hives barley-sugar, but some are so dreadfully weak in bees, I fear I shall lose them. I feed by laying the barley-sugar between the bars under the carpet. Please advise me. The reason I want this hive altered is that I may alter all my other hives to it.'—J. F. NEWLAND.

Crawley, Sussex, Jan. 3rd, 1877.—'Perhaps you would like to hear how I first became acquainted with scientific apiculture. I had kept (?) bees for five or six years on the skep system, but did not know till little more than a year ago how to get the honey without killing them, and this I never would do. My stocks continued to die off because I did not understand how to treat them. In August, 1875, I came across Mr. Hunter's *Manual*, and that was the turning-point in my apicultural career; then I passed from darkness into light. That same month I had two frame-hives made, transferred a stock into each, and fed them up to the middle of October. I wintered five stocks in all, without losing one of them. By the spring of '76 I had got together eight hives, which have averaged 35 lbs. in supers, besides about 25 lbs. each in stock-hoxes, which I left them for their winter's consumption. I have now got nineteen stocks, two of which are straw and the others bar-frame hives, with the *quilt* only for their crown-boards, thanks to the *Journal*. In introducing a queen to a black stock in August last, I noticed two bees with an earwig, which they endeavoured to throw out of the hive, but were unable to do so, as

one of them had got its sting fixed firmly in the creature's body. In attending to the queen I lost sight of them, and therefore could not tell how they eventually treated their victim.'—S. S.

'I have been striving in every way possible to advance the cause you have, I believe, at heart, viz., the best way to keep bees by following your advice, and showing the result to the old-fashioned bee-keepers by whom I am surrounded, and of some who would not save their bees I have begged them and prevented the trouble of brimstoning them. Having brought the bees home and put two lots together into a hive partly filled with old, but healthy combs, and fed them liberally, now I think (and those from whom I had them think too) that they will stand the winter and do well next year. And another plan that I have adopted has been to lend my *Journals* to any one who would read them; and if you could see the state they are in you would think they had been circulated. And the result of all this is, many of them that have read the *Journal* and have seen the bees, whose lives I have saved as I have before described, are beginning to think the new-fangled—as some of them style my—I ought to say your, way of bee management is the best, and they are willing to join with me to form a bee club, and have the *Journal* for themselves.' —G. Sharp.

Perth, 16th January.—'I have taken the liberty of dropping you a line or two regarding a visit I paid to Dunning, a little village about ten miles from Perth, and having had a friend who is a bee-keeper, he kindly introduced me to a number of the keenest bee-keepers in the village, all of whom are working on Mr. Pettigrew's system. Some have wholly straw hives; others have them of straw sides, with the crown of wood, with which they take off the supers, which vary from 10 lbs. to 20 lbs.; their manner of feeding in spring being by a drawer sliding out at the side of the hive, said drawer being fitted in a cavity in the bottom board. They are all most enthusiastic bee-men, who pay very great attention to their hives, and it is a very rare occurrence if any ever die with them. They have taken about three tons of honey, stock included, which were all light last year. This season in the village there were about 80 supers; but, mark, there had never been a bar-frame hive amongst them, and they never saw a drawing of one until I sent them some copies of your valuable *Journals* of last year. None of them are members of an Association, but I am sure, if they were once thoroughly started with the Bar system, they would do well. The number of stocks vary from 29 to 4. A great many of them are about 25, all of which are strong and very healthy, with no appearance of foul brood, that being a thing they are perfect strangers too. I weighed a number of stocks, and a great many were about 50 lbs., one being 150 lbs. last August, which was never taken down. It is an extra large hive, five swarms being in it, as a few united naturally and went together, which were allowed to remain. From this hive more supers were taken than ever was previously known to be in their district, the consequence being that they now are fully convinced that strong stocks are most advantageous every way, require less labour, less feeding, and greater returns. I took the liberty of advising them to become readers of your *Journal*, through which they would reach to the highest point of perfection in all points regarding the best and most lucrative way of management. I hope they will take my advice. As regards my own stocks, I put every one down last August, and also put a few of my neighbours' down, for which I received all the bees. I joined two swarms together,—in some cases three,—put them into empty scopes, and fed them up on Mr. Pagden's plan. They took the syrup greedily, made comb rapidly, and filled their hives with comb, and were carrying in pollen as late as the middle of November, and to-day they are all doing well; indeed, after this, I will have no hesitation in doing the same every year. Now you must remember that I am only a novice still, as far as bee management goes, but I am a very willing scholar, which is a great help. If you see your way to put this, or part of this, in your *Journal*, it might be a stimulus to some one commencing bee-keeping, as there never was a person more frightened to go near a skep of bees than your humble servant; but now I can go amongst them without giving it a thought, either by artificial swarming or anything else. I beg to apologise for thus trespassing on your time.'—A Lover of Bees.

Swansea, Jan. 23.—'We have had mild weather up to the present during this winter here, although very wet, and many days have been quite spring-like. On Sunday last a strong hive of black bees flew quite as if it were summer, and at 3 p.m. I saw two return with pellets of pollen upon their legs. I thought it a very remarkable occurrence, and worth mentioning to you. Many flowers are in bloom—mignonette, Veronica, &c., &c.'—W. Walker.

Northallerton.—'This is the first winter I have had the bees in my garden, but so far, I am glad to say, they are in a lively and healthy condition. Three or four out of the seven have little honey left, nor do I see brood in any of them. Need I express the pleasure I have in giving the attention they require?'—G. D.

Queries and Replies.

Query No. 188.—Will you answer me, at your convenience, the following?

1. How long do bees live? My Ligurian hive swarmed on May 11th last, got very strong in the summer, and filled me a super of 42 lbs. By the 5th of June I presume all the Ligurian brood would have hatched out. Hybrids began to make their appearance in July, and now form the bulk of the bees in that hive. But still there is a considerable sprinkling of decidedly-marked Ligurians, some appearing very fresh, like young bees. My barley-sugar feeder is a small wooden box with a hole in the bottom, which is placed over the central feeding-hole. It has a double sliding top—the lower one of glass, the upper wood or pasteboard. By sliding out the upper lid, and keeping the glass one in its place, I can examine at leisure the bees, which come in numbers into, and are very active in, the box.

2. Are the Ligurians which I see seven months old, or do hybrid queens breed pure Ligurians (in colour) as well as hybrids?

3. Have bees a strong aversion to the smell of ants? Can bees smell? My garden is infested with very small red ants. Having taken and hived a swarm last June, I fed them through seven or eight holes to give them a start. For three days they took the syrup voraciously, and then altogether ceased. I took off the nearly full feeding-bottle, and observed a few ants round the mouth of it, and the holes of the feeding-stage all propolised up. I cleared them out, and put on the feeding-bottle again; but the next day found more ants, and the feeding-stage again propolised up. Did the bees smell the ants round the mouth of the bottle, and stop the holes in the stage to shut off the odour?

I set my carpenter here to make a hive according to the dimensions you gave in the November and December *Journals;* but is there not an error in the figures 21 inches for the *sides?* Ought it not to be 23 inches for the sides to make the interior dimensions come out 17 inches at the top and 17 inches at the bottom?—J. Hodgkinson, *Strensall Vicarage, York, Jan. 8th*, 1877.

Reply to Query No. 188.—During the summer, when bees work vigorously, their life is of little more than six weeks' duration; but in winter, when they are compara-

tively inactive, they do not waste, and consequently, unless attacked by disease, continue to live. The length of life of a bee is governed by the amount of labour it performs, and is not a question of days or weeks.

Hybridized Ligurian princesses breed bees of all shades, from the most beautiful to the darkest, which will account for the Ligurians (?) in your colony.

That bees have a sense equivalent to smell is easily proved, when honey is scarce, by exhibiting a little near an apiary.

Bees naturally stop all crevices and holes to keep out small vermin; but we have not observed that the smell of them would cause the bees to refuse their food. The probability is—seeing that they were a natural swarm—that the fields and gardens at the time yielded nectar more attractive than the syrup, and caused them to neglect it. It is a matter of fact that when honey is plentiful in the fields the bees will permit open-air extraction without attempting to rob.

If the ants' nests can be found, now is the time to destroy them by digging them out. In the summer time a crowbar driven through their nest, leaving a hole about 2 feet deep, will cause the death of thousands, as they, in rushing about, tumble in by dozens, and cannot climb out again owing to the crumbling nature of the wall round the hole.

The measurement given is correct. The hive is 17 inches at top inside; the inner and outer walls are each ½ inch—making 19 inches; and the top of each leg is 1 inch wide, making 21 inches, while the bottom is 1½; which makes all square outside, and the necessary difference within. —Ed.

Query No. 189.—Crown-Boards and Bee-Sheds.—Having taken in your *Journal* of bee culture, I am desirous of having improved hives. I must tell you I am using frame hives with zinc slides in the crown-board. I fancy your hives are cheaper. Will you tell me how you admit the bees to the supers, and how you get them out? Also, if you approve of bee-houses or sheds, and if you have a Leaflet on Driving?—John Penny, Jun., *Horndean, Hants.*

Reply to Query No. 189.—Our method dispenses with the crown-board altogether, and in place thereof we use the quilt. When placing supers on the hive we remove the quilt and set them (the supers) on the frames; and if any parts of the frames are exposed so that bees can get out, we lay strips of carpet or similar material over them, and thus confine the bees to the hive.

On removing the supers, if they be composed of sections, we lift them singly and brush off the bees; if they be boxes we place them in a larger box, to which is fitted a bee-trap, and the bees soon clear out.

Bee-sheds, as usually made, are abominations, as most bee-keepers find who use them. Every hive should stand on its own pedestal, and should have a separate roof. Butler, the author of the *Feminine Monarchi*, 250 years ago, was well acquainted with the folly of crowding bees, '*as many use to doo*,' for, to quote him, in language divested of the phonetic peculiarity he had adopted, 'To set many stalls upon a bench is not good, for that in summer it may cause the bees to fight, as having easy access on foot to each other, and standing so near sometimes to mistake the next hive for their own.' 'The single stools, therefore, are the best,' &c. and 'it is better to rear them with four legs, though little and short. If they be 12 or 13 inches, 3 or 4 inches may be forced into the ground for their surer standing. They should stand in straight ranks or rows from west to east, 5 feet one from another, measuring from door to door, and from south to north (the rows should be) 6 feet one behind another.'

Butler gives many careful directions for preventing fighting and loss of bees, which, in his day, were understood to be the consequence of overcrowding of hives.

Our chief objection to bee-houses is based on the fact that it is almost impossible to operate on one of the hives contained within them without disturbing all the others and bringing a very 'hornets' nest' about the hive under observation. Our remarks do not, of course, apply to ranges of hives on separate stands under long sheds or awnings, but to such as are congregated on shelves or benches. The fact of *a roof* being continuous does not constitute it a bee-house, in the usual acceptation of the term, and, as a rule, such roofs are seldom available as bee-sheds.—Ed.

Query No. 190.—Standard Hive.—In last month's *B. B. J.* you were good enough to explain the working of the 'Standard Hive.' There are one or two points I do not yet quite understand and should be glad if you will make them a little easier in your next. One is how the inner side of hive is fastened so that it falls back against the outer: is it hinged from bottom? and if so, how does it give more space for shifting, except at top? and being moveable in this way, does it work practically in providing dead-air space? Finally, is there any difficulty in moving same from bees propolising to the side on which it shuts? The next point is the floor-board: does it slide forward in front, if so do you not find it stick to bottom of hive, mine of the Woodbury pattern are fixed quite firmly sometimes? I quite see the advantage of the Standard in theory; if you can make it plain practically you will no doubt sell any quantity.—John Edey, *New Street, St. Neots.*

Reply to Query No. 190.—The bottom edge of the inner side of the hive is not hinged at all, but is kept in its place by a strip of wood. It is not intended to move outward, lateral movement at the top being sufficient for all purposes.

The moveable side when closed fits closely against shoulders in the back and front of the hive, as was shown in the engravings illustrating the hive in the description of how to make it in Vol. III. of *Journal*. It is well known that bees will propolise any internal angle, but as the moveable side shuts quite close to the shoulders above mentioned, there can be no propolis in the joints, and in practice it may be ignored altogether, as it in no way interferes with the action of the moveable side. If more space be required, the moveable side can be withdrawn altogether and replaced with the greatest ease and comfort. When the floor-board is to be removed a couple of wedges are withdrawn and the floor-board drops and can be drawn either forward or backward if required. In this case, as in the other, the joints are so close when the floor-board is wedged up that no propolis can be thrust in, so that when the wedges are removed the floor-board becomes quite loose. We are quite aware that attempts have been made to detract from the merit of our hive on the ground that it will be much propolised, but we boldly assert that we know of no hive whose propolis is so little likely to be used, or when used so little likely to inconvenience the operator.—Ed.

Query No. 191.—Transporting Bees.—I am sending two stocks (Rd. skeps) down to Wilts. Can you suggest a better way than this for safe transit? If so, I shall be glad:—An open wooden crate, large enough to take both side by side, tie straining cloth over the hives, place them in open part down, and resting on crate rails. Secure in firm with cross strips and wedge in with straw. Would it be safe to secure bees by tying securely over with canvas or straining cloth and send them unpacked in any way whatever?

Reply to Query No. 191.—If you will be advised by us, do not pack bees in anything that a railway porter cannot conveniently lift and carry with one hand. If you send two stocks in a crate, it will probably be upended on a truck or trolly, and may be tumbled over *anyhow*. Neither do you send bees in skeps with the open parts of the hive downward, or, if the combs tumble

out, the bees will be destroyed—drowned, in fact, in their own honey. The best method of which we are aware is to take out the bung from the hole on the top of the skep, or if there be not one, cut one 2 or 3 inches in diameter, and cover it with perforated zinc, well fastened by French pins (wire nails) thrust diagonally through it into the hive. If there are sticks through the combs they will travel better than without; but if there be none, then give a little smoke, turn up the hive, and force a piece of tough, old comb down between each pair of combs in the hive to prevent their falling sideways, then tie strainer cloth over the hive and set them in the half of an American flour-barrel, into which has been first placed a fair lot of shavings or chair-makers' waste cane, to act as a cushion, and pack all round the hive with similar material. To prevent the hive falling out in case of being overturned, strings should be crossed above it, sewn through holes in the barrel, and a rope or other handle should be formed across the top, so that the package may be easily carried. Now if any of the combs begin to leak, their honey, instead of running down on to the cloth where the bees will be congregated, trying to get out, will run through the zinc over the crown hole, and out of the hive, or if the combs fall the bees can get above them to the strainer-cloth and get air—but as a rule, except the packages be most villainously ill-treated, or the combs are new and tender, they will travel in perfect safety.—Ed.

Query No. 192.—Swarm Boxes.—Will you please to give, through the columns of the *British Bee Journal*, a description of the best kind of wooden bee boxes for sending swarms by rail; a few hints as to size, shape, and ventilation, &c., would be esteemed a favour by —F. J. H.

Reply to Query No. 192.—A wooden box about 14 inches square and 6 inches deep, with holes on all sides of from 2 to 3 inches in diameter, will answer all purposes. The holes should be covered on both sides with perforated zinc, and strips of wood should be nailed or screwed on all sides in such a way that the box cannot be fitted amongst other boxes, and the requisite supply of air prevented. One end of the box should be capable of easy removal, so that the bees may be readily thrown out on their arrival, either into the hive they are to inhabit, or into such a position that they can run in, as recommended in our leaflet on Hiving. Before sending out swarms, they should be carried into a dark room, and fed by the bottle through a single thickness of the zinc, the outer being screwed on afterwards. Label them :—'Live Bees—Perishable—This side up—To be delivered immediately;' and put a rope handle to the top side of the box.—Ed.

Query No. 193.—I would be glad of your opinion on the following case, that has occurred to me in my bee-keeping.

Amongst my hives, when wintering down, I had a very strong stock in a common straw skep, which weighed 35 lbs. Early in November they were moved to a northern aspect, under a shed, and on examining them last week the hive was found totally deserted, although the weight had apparently increased to 36 lbs. I may mention that our climate here is very much milder than yours, in fact, this winter has been much more spring weather than any other, except for the deluge of rain. —F. W. A., *Cork*.

Reply to Query No. 193.—We can only suggest that, having removed your bees from their usual stand to a position not far enough away to be out of their radius of flight, they, on coming out of their hive for an airing, flew back to their old stand, and were lost. This is the more likely to happen at such a time of year, as there would be few bees that had not already flown, and consequently few that would be *native* to the new locality.

The increase of weight can only be accounted for by supposing the hive to have become damp, either from internal or external causes. A great internal cause of dampness arises from a cold situation and no sunshine, and an external one from closely covering the hive with impermeable material.—Ed.

Query No. 194.—I recently purchased six hives (straw) of bees, which were delivered by the railway company in such a condition that to return them would have been useless, as it was evident that every hive was seriously damaged from the combs having been all jarred together and a deal of honey running away. Now I would wish to ask—

1. *Liability of Receiver.*—Am I to be held liable for the value of the bees so delivered, simply because they were tied up as I directed—viz. with a cloth over the bottom of each hive, and turned upside down? I believe that, as the hives were round, and not flat-topped, the evil lay in their rolling about, one against the other, as nothing was done to prevent this, which was certainly an oversight on the sender's part: hence, if that were the cause, all might have been right had they been thus secured. The only instructions I gave were as stated above. I will add that the sender wished, first, to pack the six hives on their stands in one or two crates, with a piece of perforated zinc in front of the ⅜-inch entrance; second, to have sent them thus separately; and the above instructions were only given as a suggestion.

2. *What to do under difficulties.*—Now five of the six hives above are turned over on their boards, and the combs are down, and there are bees in each, but how many I cannot say. The other hive is still upside down, with a cloth over them, which they have eaten through, and thereby go in and out; but they are in a greenhouse, and have their full fly when I can open door and ventilators. I can easily take off the cloth and look at these. The combs appear to be fixed; but the difficulty is what to do with so many—I say many, hoping there are in each hive—and how to proceed, especially as it will be necessary to ascertain whether the queen is in each hive alive or not. Your kind assistance now the season is advancing will greatly oblige.—J. H. H., *Jan. 25th*.

Reply to Query No. 194.—With regard to the question of liability, it appears to us that it is clearly your own, as you gave directions for the packing, and the consignee obeyed them. That they were insufficient—not calculating on the difference in security between flat *versus* round-topped hives—cannot, we think, be held to be a default by the sender. Neither can the railway company, in our opinion, be held responsible, since the hives were not properly packed. Elsewhere (Reply to Query 191) we have, by request, given directions for packing hives, and have suggested half flour-barrels, &c., as the vehicle, as may be seen; but it occurs to us that, in carrying his splendid supers from show to show during the past season, Will Martin, the "Beeman" of West Wycombe, used nothing but chairmakers' cane refuse to form pads on which the supers rested, and were kept perpendicular (?). The Hon. and Rev. H. Bligh, in bringing his splendid collection of supers to the Alexandra Palace Exhibition, with his usual ingenuity, packed them in a kind of box with a false bottom, between which and the real one a set of old mattress-springs were fixed, which were sufficiently elastic to ease the jolts and prevent breakage. We mention these facts to show that the greatest, or, at least, a fairly reasonable amount of care had not been used in packing in the case in question; and if the railway company could prove even so much, we fear the verdict in case of trial would be against you.

'What to do under difficulties' of the kind here described has been already shown in a former number. The hives should have been kept bottom upwards and the combs righted, bits of cork being placed as wedges between each to keep them all in their places. The floor-boards should then be put on, and the bees permitted to

pass in and out of the then top of the hive, *under* the alighting stage. A hole should be made similar to a feed-hole in the skep-crown to allow the running-honey to escape; and as soon as the bees are quiet and within the hive, they should be confined with perforated zinc to keep out robbers; and if the weather be cold they should be carried into a warm room or heated greenhouse. The foregoing plan will give the surviving bees a chance of fixing their damaged combs in their original places, and of recovering many bees apparently drowned in the running honey. The hives, with the broken comb, turned on to their stands, without any attempt at rectification, must be in a sad plight, as the bees cannot rectify the combs or find space between them or in them for clustering or breeding. If sufficient of them, with their queen, survive, they will make passages through and between the combs by gnawing away the cells on one side, and they will build anew in the vacancies caused by those that have fallen. It would have been better if, instead of letting them 'take their chance,' the available combs and bees had been transferred and united, thus 'making the best of it.'—Ed.

Query No. 195.—1. Temperature of Hives.—What should be the internal temperature of hives? Should it be much higher than that of the air outside?

2. Metal Feeding-stages.—Are perforated zinc or tin-feeders objectionable? Would syrup or barley-sugar have any injurious effect upon either zinc or tin?

3. Crown-Boards.—I intend dispensing with crown-boards and using quilts, both for winter covering and also feeding.—C. E. G.

Reply to Query No. 195.—1. In cold weather the internal temperature of hives should not be allowed to fall below 40 degrees outside the clustering bees, and in hot summer weather it will seldom be found higher than that outside, because the bees take every possible means of ventilating it. In the cluster the heat varies from 70° to 100° or more Fahr., depending upon the size of the cluster, and whether they are quiet or excited. Feeding during cold weather will cause excitement and heat, but during a long 'spell' of cold it is unsafe to increase the heat in that way; for when there is great consumption of food, there is equally great necessity for an early cleansing flight, and if the cold weather cause delay in this particular dysentery will almost surely supervene.

2. We have never heard of any objection to tin for feeding-stages, beyond the fact of its coldness; but, considering that feeding with syrup ought not to be done during cold weather, the objection is rather shadowy. Zinc is objected to, because it corrodes when food, slightly acidulated, comes into contact with it, and the death of queens, when imprisoned in zinc cages, has been attributed to their partaking of food containing the oxide.

3. We are glad to hear of the downfall of another set of crown-boards. They must all go some day.—Ed.

NOTICES TO CORRESPONDENTS & INQUIRERS.

Leaflets.—Judging from the many 'approvals' received thereupon, we think we are justified in recommending our Leaflets as *bonâ fide* aids to bee culture.

P. and F.—If you wish for aids to Lecturing during the winter season, you cannot do better than purchase the set of Lithographs of the Anatomy of the Bee, post free from this office at 21*s*.

John Robb, *Holbeach*, would feel greatly obliged to any correspondent or reader of the *British Bee Journal* for the best method of making mead.

Communications from—W. N. Griffin; Dr. Pine; W. Broughton Carr; G. C.; A Country Doctor; C. Shufflebotham; C. T.; H. Jenner Fust; W. T. J.; J. W. Arbroath; Jas. Irving, M.D.; A Lanarkshire Beekeeper; Harvey Wall, are in type, but, we regret to say, are unavoidably postponed.

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No.

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THE

British Bee Journal,

AND BEE-KEEPER'S ADVISER.

[No. 47. Vol. IV.] MARCH, 1877. [Published Monthly.]

Editorial, Notices, &c.

MARCH.

The month of March is usually a 'trying' one to the apiarian, and following an unusually mild February, which has thrown all bee-keeping rules and regulations out of gear, and deluded the bees into acting as if mid-April had arrived, it is likely to be a time of considerable difficulty and vexation.

The early spring flowers have appeared much earlier than usual, and fruit-trees, that ought not to have shown a blossom before near the end of this month, have, by the geniality of the climate, been tempted in many instances to unfold themselves in the middle of the past month, stimulating the bees into excessive breeding, and endangering the prospects of both the fruit and the honey growers, for should a frost set in the blossoms and the brood, equally the grounds of hope, may be blighted. The feeding of light stocks has been a *necessity*, but stimulative feeding to promote and encourage breeding, will, should the bugbear frost ensue, but add to the dangers of the season. We hear of hives 'in splendid condition,' and 'breeding like mad;' and the argument that, 'now bees are gathering pollen, and consequently *breeding*, it cannot be wrong to encourage it,' has cropped up from many places; and we are sorry to know that artificial pollen, and gentle feeding with syrup, have been the consequence of the unwholesome argument, and probably the cause of the untoward prosperity (?) of the bees.

Weight of Stocks.—It is never safe at this season to judge of stocks by their weight, except when they are very light, and then feeding is absolutely necessary, and should be at once proceeded with, but when *heavy* the bee-keeper should satisfy himself of what the weight consists.

It may happen that stimulated by the incoming of pollen and nectar, no matter whether naturally or artificially supplied, and encouraged by the mildness of the weather, good stocks have been induced to convert their stores into brood to a very large extent, which latter being of nearly equal weight with the former, or perhaps slightly increased by the ingathering, is delusive, and, if relied on, may lead to great disappointment and loss. Bee-keepers are sometimes greatly astonished at finding that their stocks suddenly become light during a short period of frost or rainy bad weather, and are apt to conclude that they consumed their stores during that visitation, but the solution of the problem will be found in the fact that the frost or rain caused the breeding to cease, and perhaps rendered its destruction necessary to the bees' self-preservation. The stoppage of ingathering, from whatever cause, is immediately followed by a cessation of breeding; and if it continue, and the stores within the hive become straitened, the bees commence to eat the young larvæ and the food with which their cells have been partly filled, and throw out of the hive the more matured grubs, determined, it would appear, not to allow more inhabitants to appear to share their limited supply of provender. Thus hives, which may have been of great weight in February, may be found in March or April so light that they might almost be blown away by the wind.

Stimulative Feeding.—The time has now most certainly arrived when stimulative feeding should be the order of the day; but it must not be forgotten that when once begun it must be continued until the bees are able to gather sufficient food from the flowers in the gardens and fields. The best way of administering the syrup is by the bottle and stage, so constructed that the bees can obtain it from a number of holes, limited to their strength and requirements, that they may not be able to take more than they can consume for breeding purposes for the time being. A constant supply, however limited, presupposing that the stocks are not actually *needy*, will quickly be effective in inducing oviposition, it being now a well-understood rule that the breeding of bees is governed by their income, subject of course to the vicissitudes which such income may conduce to. A stock having a store of, say, two pounds of honey in the hive, if enabled to obtain a constant supply of food from one hole in feeder, will at first begin to store it since it will be more than sufficient for the daily wants of its members, and in a few days the excite-

ment consequent on the increase of stores will have so aroused the spirit of activity that the bees will act as if the ingathering were natural —as if, in fact, spring had arrived, and they were gathering from flowers and blossoms.

Now, if at the same time they be offered artificial *pollen*, as well as honey in a form convenient for their use, the delusion will be completed, and breeding will go on at a rate proportionate to the supplies they are enabled to obtain and the length of time they have had access to them. As is well known, it takes three weeks for eggs to become bees, and therefore during the first three weeks of the feeding there can be no addition to the inhabitants of the colony, but, on the contrary, many will have been lost through the labour entailed in the ingathering and nursing.

We have on a former occasion shown that the life-sustaining heat of a hive, when the outdoor temperature is insufficient, depends mainly upon the *living bees*, and therefore a large proportion of them will be always necessary within the hive, and consequently, until young bees begin to hatch out of the cells, greatly increased activity must not be expected, but when the increase of numbers has once commenced the progress of the hive will be astonishing; young bees will take the place of their elder sisters as nurses, and the latter will be free to go forth as foragers; more artificial pollen will be carried in, and, to keep the balance true, more syrup should be given by admitting the bees to a second hole in the feeder, and a satisfactory result may be relied on. It must be understood that, in promising a satisfactory result, we do not positively assure our readers that they will have early swarms, or May supers, for their production depends upon future weather, over which bee-keepers have no control; but they will have their hives filled with (the all-necessary) *young bees* instead of old ones, and in a favourable season that advantage will greatly enhance the value of the colonies. On the other hand, should the season be adverse, the colonies containing young bees will continue to live and keep up their strength, while those containing aged bees, which have not been stimulated, will dwindle and possibly die out.

Stimulative feeding must, however, be pursued with judgment. We have said that bees increase according to their income, tempering the assertion by allusion to certain vicissitudes that might arise therefrom. It is 'fabled' that a hen-wife having, by feeding her fowls, obtained from them one egg each per day, concluded that by doubling the quantity of food she would get *two*, but the result was, the fowls became *fat* and ceased laying altogether; and this points exactly to one of the most common of the dangers attending the income of bees. So long as the ingathering increases only in proportion to the necessities of the multiplying colony, breeding will increase to the fullest possible extent, and when the income slackens, so also will the breeding; but as soon as the bees gather more than they can consume they hinder the breeding by filling the cells with honey and circumscribing the nursery apartments, and if a glut of honey comes on they stop it altogether by filling the cells as quickly as the hatching bees vacate them. This is an oft-told tale, but at this season it is necessary to remind bee-keepers that if they want their stocks to be strong in bees, which is the condition most to be desired, they must not give them more food than they can *consume*, yet must take care that they have a sufficiency.

Artificial Pollen.—Properly administered artificial pollen has become the great stepping-stone to success in the spring management of bees, and, notwithstanding the sneering remarks concerning it which have appeared in another paper, we most cordially recommend it, as do all who have given it an honest trial.

Pea-flour, such as is used to make pea-soup, is our favourite article, and bees will take it 'ravenously' if it be offered to them in a way that they can collect it and pack it on their thighs; but there are several other *meals* of which they are equally fond. Pea-flour may be purchased at almost any provision-shop, in packets costing a penny and twopence each, so there is little difficulty in obtaining it; and, if only for the pleasure of seeing the activity of the bees when working at it, and watching them pass it from their tongues to their thighs, every bee-keeper should offer it in his apiary. We have not yet discovered or heard of a better method of administering it than that suggested, and used, by us last year, we may say with the greatest success. Take an old skep, invert it on the ground, or, to keep it dry, set it in a large flowerpot, half fill it with yellow-deal shavings, thrown loosely in, and sprinkle the pea-flour on to the shavings. To keep off the rain drive three or four sticks into the ground so that they shall stand a foot or more above the skep, and invert a milk-pan upon them. A glass pan will be better than an earthenware or iron one, as it will admit the sun's rays and help to keep the interior of the skep warm; but as the bees will be able to get amongst the shavings in large numbers and help to keep up the temperature, the glass is not essential. This method of pollen-feeding to bees completely settles the question as to whether bees *seek* pollen or whether it is accidentally obtained by them in their search for the nectar from flowers and blossoms.

They may be seen to lick it up by 'swabbing'

the shavings with their tongues as sailors swab a ship's deck with a length of loose yarn to clean it; and when the tongue is coated with the meal (probably made moist thereby) they pass it quickly to the hindmost pair of legs, often rising in the air and rubbing them together to mould it. Amateurs sometimes find a difficulty in getting their bees to take it; we find none. We do not expect the bees to seek it on unkind days when they ought to be at home aiding in maintaining the hive's temperature, nor in small apiaries will they be likely to throng about it as they do in large ones; but after they have once found it and have taken some to their hives they will not forget the spot where it can be found. To induce an early visit take an old skep, roast its inside so that the propolis shall give forth its aroma, then treat it as above suggested, and it will not be without visitors.

Queenless Stocks should be united to others, care being taken to cage the queens of the latter for a day or two. The union will be more easily effected if there be brood in the hive to which the queenless bees are to be added, and the queen will be the more readily 'acknowledged' by them.

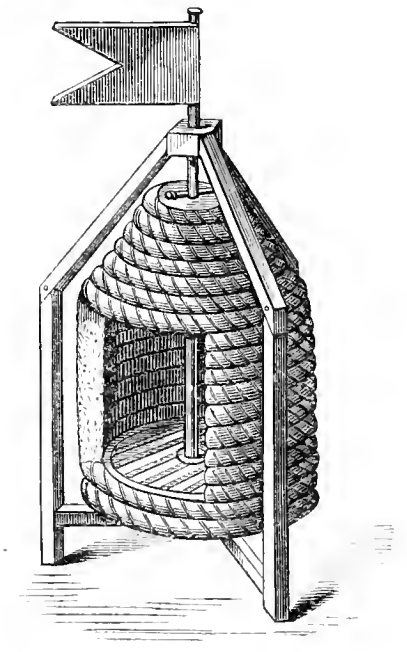
Queenless bees, if queenless for any length of time, appear to become '*uncivilised*,' and it is most difficult to induce them to accept a queen, but the presence of brood restores them to a sense of duty, and gives them occupation which is perhaps the best remedy for despondency in bees, as in humans.

Preparing Hives, &c.—This is the month when *preparation* should be made for the coming season. It will be folly to wait until things are wanted, they should be prepared beforehand, or the chances are that when wanted they will not be forthcoming.

Management of Stocks.—Keep all dry and free from vermin, keep the entrances contracted during cold weather, but take care they do not get choked with dead bees or *débris*, or the stocks may be suffocated. Feed all needy stocks with say two pounds of syrup, rather quickly, and then begin to stimulate by giving syrup gently, and continuously. Shade the entrances to prevent them being choked with snow, or wet with rain, and take measures to prevent the ravages of feathered enemies. Keep all hives snug and warm to prevent the chilling of brood.

ARTIFICIAL POLLEN-FEEDER.

At the late Entomological Exhibition held at Paris, M. Pellenc, of Messy (Seine-et-Marne), exhibited a new pollen-feeder, the nature of which may be gathered from the accompanying engraving. A straw skep, open on one side, is placed on a wooden stage, and retained in its place by an upright rod, surmounted with a vane. The skep rotates with the wind, so that the bees are always sheltered from the inclemency of the weather, and are thus enabled to gather the pollen in safety. Instead of the



skep having only one shelf, it may have as many as it can conveniently hold, thus permitting the greatest number of bees to partake at the same time of the flour with which the shelves are furnished. Our engraving and description are taken from the February number of the *Apiculteur*.

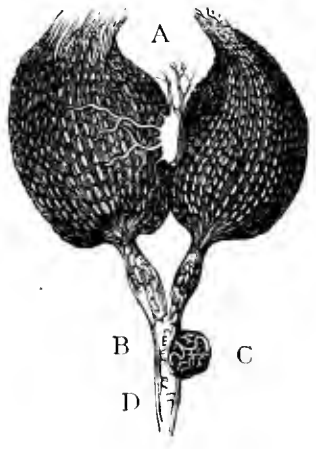
MYSTERIES OF THE BEE-HIVE.

(*Continued from p.* 119.)

Our imaginary swarm having been duly hived, and comb-building having commenced, we observe that eggs have been deposited by the queen in the bases of cells, the walls of which are only about half formed, which eggs invariably become worker bees, a fact that throws a doubt in many minds as to the truth of the theory attributed to the celebrated Dzierzon to account for the sexes of eggs. Von Siebold, in his distinguished work on the *Parthenogenesis of Moths and Bees*, sufficiently demonstrates the fact that virgin queen bees are capable of depositing eggs which will hatch into drone bees, and only too many bee-keepers know that occasionally worker bees, all of which may be called *undeveloped queens*, are capable of the same kind of proceeding. Now, in both these instances, the eggs of the unfertil-

ized queen, and of the (so-called) fertile worker, become drone bees (if they are permitted to hatch), whether deposited in drone or worker cells, whereas the eggs of a queen that has been duly mated become (as a rule) drones or workers according to the cells in which they have been deposited—*i.e.*, all the eggs deposited in drone cells become drone bees, while all those placed in worker cells become workers. This, as we have said, is the rule, and the exceptions are that sometimes the worker-bees effect a change in the eggs which would have become sister-workers, and convert them into queen-bees; and occasionally an egg, although deposited in a worker cell, becomes a veritable drone.

To account for the wonderful *rule* above mentioned, various experiments, and the dissection of many queens, took place, and it was



discovered that the fertilising influence of the drone does not affect the ovaries (A) of the queen, but only a small sac, called the spermatheca (C), situate on the side of the oviduct (D), and communicating therewith, which sac is, after the mating, found to be filled with life-giving spermatozoids. The Dzierzon *theory*, then, is that the eggs that pass down the oviduct (D) without contact with the spermatheca (C) receive none of its vivifying influence, and produce drones only, as they would had they been deposited by a virgin queen or a fertile worker, and that those eggs, which in passing *are* brought into contact with C, receive additional vitality, and become capable of evolution into workers or transformation into queens. Dzierzon found, as before stated, that all the eggs deposited in worker and drone cells became worker and drone bees respectively, and therefore thought that the queen had the power of suiting, at will, the action of the spermatheca to the *purpose* of the cell into which she was about to deposit the egg, and thus governed and *determined* its sex by permitting or refusing it participation in the drone-influence stored in the sac (C).

Finding that the drone and worker cells, as a rule, always contained drones and workers respectively, it occurred to a keen American apiarian (Mr. Samuel Wagner) that possibly it was the size of the cell that governed the sex; for, argues he, the influence of the fluid in the spermatheca is only imparted when the egg, in passing along the oviduct, is pressed against it (the spermatheca); and what can be more natural than to suppose that the smaller (the worker) cell, into which the queen's abdomen when ovipositing may be said *to fit*, causes the requisite pressure, and ensures the fertilization of the egg; while, on the other hand, in the larger or drone cells, there being *no pressure*, the eggs pass along the oviduct, and are deposited in an unfertilized condition, exactly as if 'laid' by a virgin queen or a fertile worker.*

Now the fact, as stated at the beginning of this chapter, that eggs deposited in shallow, half-formed cells, soon after swarming, invariably hatch into worker-bees, although there could be no pressure on the queen's body by cell walls, since they did not exist, appears to be in direct opposition to Wagner's suggestion that the sizes of the cells govern the fertilization, and consequently the sexes, of eggs; but if, instead of referring to the cells, we retain only the idea of *pressure*, for that is the only influence with which the cells have been credited in the discussion, we think the facts may be easily reconciled, and the truth of Wagner's theory established.

When we remember that a swarm issues in the heyday of a hive's prosperity, that the ovaries of the queen are already charged with eggs, and that the reproduction of their species is the first and most important duty devolving upon both queen and bees, it will not be difficult to imagine that the latter, by feeding their queen on stimulative food prepared in their own stomachs (as they are known to do), so enhance her desire for ovipositing that the *pressure* required is created *within* her abdomen; and that, consequently, her eggs are vivified by life-giving filaments as they pass the spermatheca, and thus becoming fertile, produce worker-bees. This idea is borne out by the conformation of the queen's parts, as shown in the engraving, and is indirectly

* This must be taken 'with a grain of salt.' The Dzierzon theory implies that the drones, both of fertilised and unfertilised queens, have equal powers; but it has, to put the case as mildly as possible, never been proved that the drone progeny of either virgin queens or of fertile workers have fulfilled the duty for which drones were created. Indeed, the best apiarians in both Germany and America coincide with their British brethren that they are useless, and incapable of becoming even 'Lazy fathers of the industrious Hive.'

supported by a fact alluded to as one of the exceptions to the rule, viz. that when a queen, either from age or the approaching end of the season, slackens in her disposition for breeding, and becomes smaller than before, sundry eggs, although deposited in worker-cells, pass the spermatheca without having been fertilized, and become drones. These deviations from the rule are always discovered by the worker-bees, but most probably not until the eggs have hatched; and then, to give the big bantlings as much room as possible, they lengthen the cells to a considerable extent, as they do when rearing the progeny of a fertile worker or of a virgin queen; but in neither case does the lengthening of the cells compensate for their *narrowness*, and the drones produced are therefore stunted in their growth, and generally believed to be useless.

OUR WANT AND SALE COLUMN.

This was established as a medium by which bee-keepers could advertise or purchase hives, &c., of each other at the least possible expense; but, unfortunately, through a disregard by bee-keepers of the rules under which it was established, it has been made a source of much labour to us and no profit. We propose, therefore, with the commencement of our Vol. V. in May next, to substitute a 'Subscribers' Column' for short advertisements at a very low charge, so that we may be relieved of the labour of replying to inquiries respecting articles of which we, as a rule, know nothing. Full particulars will be published in our next.

BLAIRGOWRIE DISTRICT BEE-KEEPERS' SOCIETY.

A number of the bee-keepers of this district having visited the East of Scotland Society's Show, held at Dundee in September last, and witnessed the splendid results obtainable under the humane and scientific methods of management, the question naturally arose, Could we not have a Society, too, and learn something of the new systems adopted by modern bee-keepers?

Acting on this thought, a few of us set about to ascertain the mind of all the bee-keepers in the neighbourhood on the subject, and, finding that a considerable number were willing to support the movement, we opened a correspondence with Mr. William Raitt, Secretary to the East of Scotland Bee-keepers' Society, as to the best method of establishing the Society. Mr. Raitt entered most heartily into our project, kindly giving us all necessary information, and offering to come and give us an address when we were ready to form the Society.

It was then arranged to call a public meeting of bee-keepers, which was held in Blairgowrie on Friday evening, 22nd December, over which Mr. James Luke (Marfield) presided, and in a few appropriate remarks introduced Mr. Raitt, who gave a most interesting and instructive address on 'Bee-keeping,' exhibiting and explaining a beautiful set of diagrams illustrating the natural history of the hive-bee. He also explained the method of working the bar-frame hive and other modern appliances. At the close of Mr. Raitt's address, the Society was formed in connexion with the East of Scotland Bee-keepers' Society, and designated the Blairgowrie District Bee-keepers' Society. Office-bearers were then elected, as follows:—Patrons—A. MacPherson, Esq., Blairgowrie; Colonel Ogilvy, Ranagulzion; A. D. Grimmond, Esq., Glenericht. President—Mr. James Luke, Marfield. Vice-President—Mr. James Grant, Newton Street. Secretary and Treasurer—Mr. James Rogerson, Perth Street. Members of Committee—Messrs. James Morrice, Ivyhank; Thomas Christie, Westmill; David Jamieson, Rattray; James McGibbon, ditto; William Mann, Perth Street; John Smail, ditto; and Thomas McIntyre, Spittalfields.

The Society being now an institution in the district, we are glad to be able to report continued progress. We now number 29 members, and have begun to make arrangements for holding a Bee and Honey Show in connexion with a Horticultural Society which is being formed here. We will be able to issue prize schedules shortly.—James Rogerson, *Secretary.*

[Our Scotch friends show an excellent example.—Ed. *B. B. J.*]

EAST OF SCOTLAND BEE-KEEPERS' ASSOCIATION.

This Association is setting an excellent example to the bee-keeping world, having already issued its schedule of prizes for the great Show, to take place at Dundee, in connexion with the Dundee Horticultural Society's Exhibition on the 30th and 31st of August and the 1st of September next. One notable feature in the schedule is the absence of prizes offered for heaviest supers, glass supers, and skeps, which, the Hon. Sec. writes, are abolished as commercial failures. He further writes:—

'We have quite a long list of noble patrons this year—the Earls of Airlie, Wharncliffe, and Southesk; Lords Kinnaird and Ramsay; Sir Thomas Moncrieff; the Bishop of Brechin, and a number of landed gentry. I am "stumping" it all round, and have a number of engagements for lectures and open-air demonstrations.'

The Association may be congratulated on the energy shown by their enterprising Secretary, Mr. W. Raitt, of Liff, by Dundee, who will be glad to give all possible information to intending exhibitors.

DEVON AND EXETER BEE-KEEPERS' ASSOCIATION.

The above Association held its Annual Meeting on Tuesday, the 30th January, at the Albert Museum, Exeter. The President (S. Bevan Fox) took the chair, the Hon. Secretary (Wm. N. Griffin) read the Report.

At the second General Meeting, which was held in April, 1876, in connexion with the Exeter Naturalists' Club, the President delivered a most interesting and instructive lecture on the 'Hive and Honey-bee.' On the 25th August the first Apiarian Exhibition was held on Northernhay, in conjunction with the Horticultural Society, and proved very successful and attractive.

The statement of accounts showed a small balance in favour of the Society. The Rev. B. Williams, Rector of Rewe, was elected President for the ensuing year, and the following gentlemen were appointed on the Committee:—S. Bevan Fox, R. J. Gray, Rev. S. Childs Clark, W. Orton Ellis, Major-General E. Saunders, and J. B. Browning. C. E. Fletcher (Hon. Treasurer), and Wm. N. Griffin (Hon. Secretary), were re-elected. Unanimous votes of thanks were accorded to the officers for the past year. Various subjects connected with bee management were then fully discussed.

SALOP BEE-KEEPERS' ASSOCIATION.

Our Salop Bee-keepers' Association is now floated, and has nearly forty members, comprising some of the principal of the nobility and gentry of the county. There will be a meeting of the Association, on April 9th, to which the attendance of subscribers will be invited, when the Committee will be elected and the schedule of prizes will be drawn up. The Show will take place in conjunction with the Shropshire Floral and Horticultural Society on Aug. 15th and 16th, when we hope that you will be able to attend with your proposed tent for the exhibition of bee manipulation.—C. Fielding, *Hon. Sec., Stapleton Rectory, Shrewsbury, Feb. 24th*, 1877.

GOLDEN RULES FOR BEE-KEEPING.

By the Rev. J. W. Shearer.

From the 'Bee-keepers' Magazine' (America).

1. For Success.—The successful bee-keepers should be firm, fearless, prompt, provident, persevering, systematic, and self-reliant.

2. For Situation.—The apiary should be in a sheltered position, near a small stream, and where a variety of honey plants, some of which yield abundant, and others constant supplies of nectar.

3. For removing Bees.—Allow for abundant ventilation; close up firmly; invert and place in a spring wagon, so that combs run with, and not across the wagon. Unless removed a mile or more, hives should be moved by degrees, only a foot or two at a time, or many bees will be lost.

4. For Hives.—The general advantages of manufacture, simplicity, capacity, wintering, and adaptation to the requirements of the particular apiarian, are to be considered. It is essential that every hive, frame, box, and moveable part, be of the same size, so that each will fit all.

5th. For Handling.—Move gently, and without sudden or violent motions, in all work about the apiary.

6. For Subduing.—'Bees filled with liquid sweets do not volunteer an attack.' Hence cause them to fill themselves with honey by smoking or frightening them.

7. For Smoking.—Use dried buffalo-chip from the cow-pen. It costs nothing, is the best material, and, when lighted, lasts a long time.

8. For Protection.—Use a bodinet veil sewed up and open at both ends, one fastened with a rubber around the hat, the other secured under the coat-collar.

9. For sweeping Bees.—Use a green twig or bunch of asparagus, never a feather.

10. For Stings.—Do not flinch if stung. Scrape the sting out with a knife or finger-nail, pinch the wound, and apply soda, hartshorn, or whatever alkali is found best by the particular party.

11. For Increase.—Rear queens, or have queens' cells ready from nuclei, before the swarms are made. Make but few swarms if honey is desired.

12. For Nuclei.—Use the regular frames and hive with division-boards, to diminish or increase at pleasure. No extra useless comb is then needed, and they are easily increased to stands. (Stocks.)

13. For inserting Queens.—She should be fertile; the bees aware of their loss, no queen-cells started, the same scent given, and the bees quiet when she is released.

14. For Strength.—Keep only prolific queens, feed in times of honey-drought, check undue swarming by destroying queen-cells, and, if necessary, by inserting combs of capped brood or uniting stocks.

15. For Honey.—Keep the hives very strong if much is desired. The neater the box, or the jar, better the price.

16. For a Queenless Colony.—Give it a queen, queen-cell, or eggs at once, or unite it with another colony.

17. For Queens.—Raise queens from select stocks. Keep only prolific ones, and supersede the third year after close of the spring honey harvest.

18. For Record.—Keep a record of the age of each queen, all examinations and conditions of the hive, on a card or tablet fastened conveniently in the top of each hive.

19. For using Extractors.—Use sparingly, except in the midst of a honey harvest, or directly thereafter, to give the queen room for laying.

20. For Comb-Guides.—Use sharp angles, or strips of comb in the centre of the frames, and tip the hive forward at an angle of 25°.

21. For Worker-Combs.—Have combs built in colonies which have young queens, and always near the centre of the hive, or use artificial foundations.

22. For Raising Drones.—A square inch or two of drone-comb is sufficient in a hive to prevent the rearing of useless drones.

23. For Cleaning Combs.—If dry, first soak and then direct a stream of water from a syringe upon the comb, so inclined that the water carries away the filth.

24. For Feeding-Time.—After sunset, with tepid syrup if cool season; liquid food in summer and fall, and solid candies in winter. The syrup should vary from equal parts, by measure, of sugar to one of water, for fall feeding. A little vinegar may be added in summer to prevent storage, and a little cream of tartar in autumn to prevent crystallisation; freshly-ground oats and rye for pollen, fed in a dry sunny place, in spring.

25. For Removing Propolis.—Alcohol cleanses it from glass, benzine dissolves it, but the best way to remove it from quilts is by rubbing in cold weather.

26. For Wintering.—Stocks should be strong in bees, heavy with stores, protected from sudden changes and depredators, with ventilation according to temperature.

27. Against Moths.—Strong colonies with fertile queens.

28. Against Robbers.—Contract the entrances—entirely if necessary. Leave no sweets exposed.

29. Against Ants.—Pour coal oil or carbolic acid into their haunts. Seal honey in jars, or place it on a bench or swinging shelf with a good wide chalk mark around the supports. Ants cannot cross a fresh chalk mark wide and continuous.

30. For General Success in all Points.—Keep your stocks strong.

Five things to be learned:—

31. How to succeed in artificial fertilisation.

32. How to coax bees to use old comb in constructing new.

33. How to prepare pollen for use in the cells.

34. How to make comb foundations that will not stretch.

35. How to winter successfully without comb.

HOLLY BERRIES AND BEES.

Mr. Charles Darwin writes to the *Gardeners' Chronicle;*—'Several of your correspondents have noticed the scarcity of holly berries in different parts of the country, and the same thing may be observed to a remarkable extent in my neighbourhood. Your correspondents account for the fact by spring frosts, but it must be remembered how hardy a plant the holly is, being found in Norway as far north as the 62nd degree of north latitude (Lecoq, *Géographie Botanique*, vii. p. 370); another explanation seems to me more probable. Bees of all kinds were in this neighbourhood extraordinarily rare during the spring. I can state this positively, as I wished to observe a particular point in their behaviour in sucking the common red clover, and therefore often visited the fields where this plant was growing; but I could see very few bees. I was so much struck by this fact that I examined several meadows abounding with flowers of all kinds, but bees were everywhere rare.

Reflecting, in the course of the summer, on this extraordinary scarcity, it occurred to me that this part of England would be temporarily in the same predicament as New Zealand before the introduction of hive bees, when the clovers (which, as I know by trial, require the aid of bees for perfect fertilization) would not seed. By an odd chance I received the very next morning a letter from a stranger in Kent, asking me if I could assign any reason for the seed-crop of clover having largely failed in his neighbourhood, though the plants looked vigorous and healthy. Now, the holly is a dicœcious plant, and during the last forty years I have looked at many flowers in different districts, and have never found an hermaphrodite. Bees are the chief transporters of pollen from the male to the female tree, and the latter will produce but few berries if bees are scarce. In my *Origin of Species* I state that, having found a female tree exactly 60 yards from a male tree, I put the stigmas of twenty flowers, taken from different branches, under the microscope, and on all, without exception, there were a few pollen grains, and on some a profusion. As the wind had set for several days from the female to the male tree the pollen could not thus have been carried. The weather had been cold and boisterous, and, therefore, not favourable: nevertheless every female flower which I examined had been effectually fertilized by the bees, which I saw at work, and which had flown from tree to tree in search of nectar. Therefore, as I believe, we cannot decorate our Christmas hearths with the scarlet berries of the holly because bees were rare during the spring; but what caused their rarity I do not in the least know.

[Note.—If Mr. Darwin had been a reader of the *British Bee Journal* during the autumn of 1875, he would have found the cause of the paucity of bees in the spring of 1876 most truthfully foreshadowed. The weather had been most unpropitious during the summer, and the breeding of bees had ceased some months before they had become inactive, and as a consequence many stocks of bees had become individually too aged to withstand the winter, and to furnish the requisite supply of young bees in the spring. Thousands of colonies perished from this cause, and in some parts whole districts were depopulated.—Ed. *B. B. J.*]

A fine opportunity for a first class Bee Show will be opened to the bee-keepers of Somerset, Wiltshire, and South Gloucester, on the occasion of the visit of the Bath and West of England Agricultural Society to Bath in June next. Who will take the initiative?

Correspondence.

*** *These columns are open to Subscribers, so that their queries, replies, correspondence, and experiences, may be* fully *and* faithfully *recorded; and for the discussion of all theories and systems in Bee-culture, and of the relative merits of all hives and appurtenances, that the truth regarding them may be ascertained. The Editor, therefore, must not be expected to coincide with all the views expressed by the various writers. All Correspondence is addressed to the Editor.*

'A LANARKSHIRE BEE-KEEPER' *VERSUS* MR. PETTIGREW.

Your correspondents, 'Mr. James Shearer' and an 'Oxfordshire Beekeeper,' took me to task last month for my remarks on Mr. Pettigrew in the January number, and a valued friend and contributor to this *Journal* wrote me privately, 'I had nothing to do with what Mr. P. *preached*, saving on bees;' and I cannot but express my regret that what I wrote gave offence to them, or any reader of the *B. B. J.*, and any allusion bordering on private matters I hereby withdraw and apologise for. The Oxfordshire gentleman considers these strictures might prove hurtful to this *Journal*. Such a thing was very far from my intention indeed. No one admires more than I do the spirited manner in which our Editor, single-handed, started so capital a medium for the interchange of our ideas, where every subscriber has a fair field and no favour; and long may it go on and prosper, and that every bee-keeper may lend it a helping hand is my earnest desire.

Mr. Shearer tries to make a great handle, even to the casting a slur on my integrity, because forsooth I indulged in a 1st of April joke! Did he hail from south the Tweed, his ignorance of Scotch customs might have been excused; but being 'owre far north for that,' shows himself but a 'gowk;' for did I not undeceive the beginner, and did not he laugh as heartily as myself at how my little favourites, by supping up the syrup *pease-brose*, *fooled* us *baith?*

I generally consider there is something unsound at the core with any one who cannot enjoy a harmless joke and a good hearty laugh. But it would appear on this peculiar datum your correspondent formed a 'decided opinion' of me. For his benefit, and that of your readers generally, I will now describe how *I* came to form a *decided opinion* of his patron the 'Manchester Sage.' I have attained a tolerable knowledge of the bee through diligent study extending over many years, with an expenditure of time that might have been more profitably employed in the interests of my business and family; but being so dearly bought, I may be jealous enough of my treasure and wishful always to add to my store. Some years ago I heard that certain articles on my hobby had been published in a periodical called the *Scottish Gardener*. The first number I managed to secure, found an announcement to the effect that the editor, Mr. Thomson, when gardener years before at Wrotham Park, had had a bee-keeping foreman, Mr. Pettigrew. The former gentleman, doubtless not being so thoroughly at home on the bee as the vine, highly commended and announced that the latter would write a series of articles on that insect. There was a kindly ring in this that I rather liked, and thirsted for more; and the next number I came across was for May, 1866. My eye then caught the heading 'Fertile Workers,' and I was delighted; for this branch of apiculture I had thoroughly studied, and had made a specialty. (My first contribution to the first number of this periodical was on 'Fertile Workers.') I began at the beginning and read on. Horror of horrors! what did I find? It is simply indescribable. I send you the book, Mr. Editor, and beg you will print it off verbatim. A richer bit of bee-lore never has nor never will appear in these pages; no hand can paint 'Pettigrew' like his own.

'Both ancient and modern writers on bees, since the days of M. Huber, have said a great deal about fertile workers. They tell us that some working bees lay eggs; they tell us how these fertile workers are produced, and describe their size and colour. I wish here to move an amendment, and to meet the statements of these writers on this point with a direct and positive contradiction. I fearlessly affirm that there never was, and never will be,

a fertile working bee. There are plenty of living writers and bee students who have great faith in what Huber has said. He was a great enthusiast among bees; but should never have been considered high and good authority on their natural history; because he, having lost the use of his own eyes, had to depend on the eyes and statements of his servant, Francis Burnens, for all he wrote about them. Besides, his enthusiasm led him to hasty and false conclusions. He was verily guilty of making mere guesses into fact, or stating them as such. He held up his spurious and manufactured goods as worthy of universal adoption. He wrote so confidently and strongly, and with seeming honesty, that he has taken almost all bee students and writers captive, and made them slaves to his opinions. Knowing that he was a blind man, they are more inexcusable than himself, especially as we have the following conversation of his inserted in his memoir affixed to his work that has been so popular:—"I am much more certain," said he one day to me, smiling, "of what I state than you are; for you publish what your own eyes have seen, while I take the mean among many witnesses." I am sure that every sensible person would prefer the evidence of his own eyes to the mean and guess-work among conflicting statements.

'But in returning to the question of fertile workers, let me here cast the burden of proving their existence on the shoulders of those who write so lustily about them. If there should be one fertile worker in all England or Scotland this year I will here offer 10*l.* to the owner if he will send her to me; and if he does not want to part with her, I will give him 10*l.* for the poor of his parish if he will send me a dozen of her eggs. And let me hope that these writers will hold their tongue about fertile workers till they honestly meet my challenge and offer, and produce one of what they write about.—A. Pettigrew, *Brighton Grove, Manchester.*'

It was well for Mr. Pettigrew that I had not seen his liberal offer in time, otherwise he would have been this day by ten pounds a poorer and, I should hope, a wiser man. The enlightened reader will, I think, agree with me, that the man capable of stringing together such a tirade would have been better employed among his flowerpots; but greater things were yet in store for the maligner of our illustrious Huber. The eminent publishers of the *Gardener* wished to add to their collection of Handy Books, and Mr. Pettigrew's editor again remembered him, and a *Handy Book on Bees* appeared. I am not going to attempt to review it; an abler hand than mine did it in the columns of the *Journal of Horticulture*, the reviewer of it, if I mistake not, being the author of a standard work on the subject, and an eminent clergyman of the Church of England; and there Mr. Pettigrew's 'errors of fact' are well hit off. Still greater advancement awaited Mr. Pettigrew. That prince of British apiarians, the late T. W. Woodbury, who guided the bee-helm of that Journal, was respected and beloved by us all, his private correspondence, equally with his published writings, showing him a keen apiarian and a thorough gentleman. The last public recorded act of his life was that article, written to dictation in a 'recumbent position,' which touched all hearts, was to controvert the erroneous teachings of Mr. Pettigrew,—his dying effort as it were. Before another issue appeared the great apiarian was no more. 'The unexpected often happens.' Was it not the Great Napoleon who said, ''Tis but a step between the sublime and the ridiculous?' If ever that step was taken, it was when the mantle of Woodbury was placed on the shoulders of A. Pettigrew. Does he take up the great master's pen modestly, with becoming fear and trembling? No, verily; but jubilantly bawls through his speaking-trumpet, over the length and breadth of the lands, that he had 'mounted on the "paddle-box" and wished *his crew* [italics mine], his reviewer, and many abler men, to whom he was but an infant in long clothes, "a happy voyage."' And how has he conducted himself on that paddle-box? Much as he did in the smaller periodical, where he accused Huber of holding up his 'spurious and manufactured goods.' He similarly accused the bee-keepers of Ayrshire,—that land, as our national bard has it, of—

'Honest men and bonnie lassies,'

of feeding to obtain their famed supers; showing his ignorance of first-class honey-comb, which, if I mistake not, from inspection, as I bore evidence at the time, contained 'no more sugar than did my pen.' You know the motto, Mr. Editor, 'Evil to him that evil thinks.' A Manchester exhibition was designed in 1873, a wretched season, and yet there appeared a monster super. Mr. Pettigrew called it 'A Crystal Palace,' and valued it at 10*l.*, at which it was purchased by an unsuspecting judge; the whole thing subsequently unblushingly declared to be 'spurious and manufactured,' got up by feeding! You, Mr. Editor, threw down the gauntlet for a test of hives. Mr. Pettigrew backed out, 'no management,' 'clever trickery,' as he termed it. Methinks there was more clever trickery than honest management in that Manchester exhibition; there never has been a second.

Mr. Pettigrew next threw out suggestions, by writing an article, for improving the *frame hive!* We all were amazed. Mr. Breen stepped forward and branded the writer as a plagiarist: the ideas were his; he had the hive in his possession, already made. 'Trickery' seems somehow inherent whenever he gets off the beaten track of the skepist, but it is not 'clever.' He proposed to overreach Mr. Breen by filling supers artificially with empty comb, but Mr. B. showed it would not work. Last summer he came out with a new dodge, cutting up the combs of his straw skeps and fitting into sectional boxes, to be palmed off for super honey. Mr. Hunter, of Ealing Rise, showed again it would not work, and 'A Renfrewshire Bee-keeper' dubbed the whole thing smartly as 'shoddy.'

Again, look at Mr. Pettigrew's unfairness in weighing the evidence as to the superiority of the Italian bee. In the one scale, Dzierzon and all the weight of Continental apiarians, with Langstroth, Mrs. Tupper, and the 'American Apiarian Convention;' in the opposite, outweighing them all, is a solitary Yankee and this Aberdonian henchman, Mr. Shearer, who has presumably as little experience of the Italian as his master. He (Mr. Pettigrew) carried his spite so far, last summer, as to style their introducer 'a quack'!

A valued contributor—Mr. Briscoe—gave an account of harvesting 144 lbs. of comb from one Stewarton hive, and got snubbed for his pains—was told by Mr. Pettigrew, if he lived in the neighbourhood of Glasgow, there was a demand for twenty

times more run honey than for comb. Did not this rather savour of quackery? Cures, from patent medicines, far away. Your excellent correspondent, 'A Renfrewshire Bee-keeper,' did yeoman service to his 'English brothers' by giving the statistics of the Glasgow market, which were to the effect that the figures should have been reversed. Did Mr. Pettigrew ever apologise for this, or any of his coarse and gross mis-statements? No, never. The oracle is ever *infallible*. Is he 'always gentle, bland, courteous, and full of suavity,' as Mr. Shearer represented? Was he not accused, the last summer, by some of '*his crew*' up in mutiny, of his language being 'as unchristian as it was unjust'? (see *Journal of Horticulture* of 11th May, 1876). As an old and unpaid contributor to that *Journal*, in return for past services, my attempts to keep the 'Captain' straight, for the credit of our common hobby, have been rewarded by suppression, and those of the survivors of the old 'crew' who still labour in throwing the lead to keep off contiguous shoals, may probably weary of the task.

What Mr. Pettigrew accuses Huber of—being 'guilty of making mere guesses into fact, or stating them as such, and of writing confidently and strongly, and with seeming honesty, that he has taken almost all bee students and writers captive, and made them slaves to his opinion'—graphically depicts his own position with his uninitiated bee-keeping readers, such as Mr. Shearer, who says I wrote of his idol, Mr. Pettigrew, as 'in a rage,' whereas my feelings really were a combination of mingled pity verging on contempt, somewhat after the fashion of the immortal Pickwick when he looked at the prostrate Winkle on the ice, and pronounced the memorable words, 'You're a humbug, sir.'—A Lanarkshire Bee-keeper.

FURZE AS A HONEY-PLANT.

Have any of your readers, or have you, Sir, any experience of the value of Furze as a honey-yielding plant?—J. H. Eldridge.

[Perhaps some of our readers will favour us with their experience. Ours is not a district in which furze can be found in quantity.—Ed. *B. B. J.*]

MILK DIET.

Though the idea of feeding bees on nitrogenous compounds in a liquid condition is by no means a new one, attention has been attracted more prominently to the subject lately by a paper read by Herr Hilbert at the nineteenth annual meeting of the Society of German Bee-keepers, held at Halle on the 16th, 17th, and 18th of Sept. 1874.

Last spring I carried out a series of experiments on this mode of feeding, but I should prefer subjecting the results apparently obtained to the cross-examination of another series before publishing them, and therefore propose, if possible, giving in the next number of our *Bee Journal* Herr Hilbert's paper, so that he may be in time for those to whom the subject is new and who have opportunity and inclination to investigate the matter for themselves at the next spring feeding.

However strange a milk diet for bees may appear at first to those who have given no thought to the subject, a few considerations will indicate (theoretically) its appropriateness. Without going into minute chemical particulars, it may be broadly stated that bees require for the nourishment of their grubs, water, alkalies, honey, and pollen, the latter containing fat, starch, and nitrogenous matter. That for pollen or meal obtained from the anthers of flowers, other meal may be substituted and with excellent results, is well known to all those who provide the so-called artificial pollen for their bees in the spring. Taking then milk, we get a mixture of fat, sugar of milk (represented by the starch in the pollen, which must be converted into some sort of sugar before being capable of absorption), and nitrogenous matter, casein, dissolved or suspended in an alkaline fluid. Now this mixed with syrup or honey to the taste of the bees may be considered as resembling in its main particulars of the baby bee food.

Herr Hilbert tells us in his paper that his locality is an unfavourable one for bee-keeping, and that his object in feeding is to get his stocks in as strong a condition as possible for the good time when it does come. What sort of a country it is we may learn from an independent eye-witness, J. Marczowka, who with three companions visited Herr Hilbert's residence at Maciejewo and spent some time with him in order to investigate his apiary. We give some of this gentleman's own words:

'From Otloczyn, the last railway station, we were obliged to continue our journey on foot. The situation of Otloczyn, in rolling sand, did not impress the bee-keeper very favourably. Having already, from his reports in the *Bee Journal*, learned to regard Herr Hilbert's apiary as by no means an unimportant one, I comforted myself and my travelling companions with the hope that as we got nearer Maciejewo the conditions of the soil would present a more favourable aspect, for it is impossible to carry on bee-keeping in a desert. Yet the further we wearily proceeded in this sandy waste, the more difficult it became to trudge through it. At last—covered with dust and perspiration—we arrived at Maciejewo, where we were welcomed by Herr Hilbert with the greatest kindness. "How in the world is it possible for you to carry on bee-keeping here?" was the first question asked, as if by one voice.

'After having heartily refreshed ourselves at the solicitation of Herr Hilbert and his eminently hospitable wife, and recovered from the fatigues of our weary journeying, we were conducted to the apiary.

'What a glorious surprise! From the flight-holes of an elegant pavilion containing the Berlepsch hives issued the industrious inhabitants in such streams that one might imagine them all seized with a swarming mania. The same joyful sight in six Gravenhorst hives placed by its side, and in eight other stocks occupying an open pavilion near. We were astonished, and were obliged openly to acknowledge that we had never seen stocks in such a strong condition. And then as Herr Hilbert opened the hives one after the other! They were overflowing with bees, and were built to the last comb, honey appearing everywhere. Truly this appeared to us unaccountable. As far as the eye could reach nothing but a desert! with the exception of a well-tended garden containing fruit trees, still young, and several beds, in which were growing several known and unknown bee-plants; not a bit of foliage worth naming! On the farm, as I afterwards learnt, were sown some twenty acres of the Chinese oil-radish, which, however, in such an exceptionally dry summer, could have fur-

nished but little honey. In short, everywhere in the whole neighbourhood nothing but sandy soil, from which the agriculturist at the best could gain a return only by trouble, circumspection, and the use of considerable capital. And spite of all has Herr Hilbert from thirty stocks (from which he has made fourteen artificial swarms) slung out four and a half cwt. of honey, and left from twenty-four to thirty pounds for every stock.'

After this account the reader may well want to know when the good time comes, or how it may be made to come at all. Doubtless bees would starve here, or at any rate give no return if they were dependent solely on the plants natural to the neighbourhood. In order then to supply them with pasturage Herr Hilbert farms his land on the principle of killing two birds with one stone, in other words, of cultivating a certain number of crops that shall furnish food for his bees as well as pasturage for his cattle. In another paper in the *Bienenzeitung* he gives us some idea of his plan of operations, with a notice of several plants suitable for his sort of soil. Leaving out of account the well-known and more usually cultivated clovers and oil-yielding plants, he recommends for sterile, sandy lands the *Anthyleis vulneraria* as particularly deserving a trial where a change of plant is desirable. He speaks also of the Serodella (*Ornithopus sativus*) as a plant excellent for sandy soils, extremely valuable either in a green state or made into hay and of the greatest use to the bees, furnishing them with pasturage for two months. Hilbert sows mustard with the Seradella, for the latter is a considerable time in germinating, and the mustard gives a green crop first which protects the young Seradella plants and furnishes the bees with food as well.

Like most others who have tried it, Hilbert has abandoned the Bokhara clover (*Melilotus leucantha M. alb. alt.* &c.), as a plant that cannot be made to fulfil this double function. Of its value as a nectar-yielding source there cannot be two opinions, and Hilbert gets quite enthusiastic in his description of the appearance of a field in full flower covered on a fine day with bees. But whether it is worth while to occupy land by the acre for part of two seasons with a plant that is most exhaustive of the soil, and which at last supplies some sticks fit only for fire-lighting, must be left to each individual to judge for himself. The intense aroma which pervades every part of the plant, and which is distinctly perceptible in the hive when the bees are gathering from any considerable quantity of it, renders it most unpalatable to cattle, except in its earliest growth.

Of far more importance is the Chinese oil radish (*Raphanus chinensis oleiferus*). This is not so rich in nectar as the last-mentioned plant, but then the following advantages are claimed for it: it occupies the land but a short time, especially if cut green; it may be sown at almost any time; it makes little thh soil; it is eaten readily by all kinds of farm-stock, being especially good for milch-cows; and, finally, while in bloom it furnishes a satisfactory pasturage for the bees, though not affording much pollen. After growing it for two years, I find the bees when at work on it invariably gather a certain though moderate amount of pollen. With me it begins to flower about seven or eight weeks after sowing, and it is at its best about three weeks or a month. Some who have grown it in Germany upon Hilbert's recommendation complained at the meeting at Breslau last September that the oil expressed from the seeds is not so valuable as many other sorts, and that the separation of the seeds from the capsules is attended with difficulty. Hilbert, however, finds it best to cut it as a green crop, getting only seed enough for the next year's sowing. After stating at Breslau that he had had that year (1876) sixty-two acres of it, he proceeds:—

'My whole hope as a bee-keeper is almost exclusively based on the oil-radish and my milk-feeding: for by means of the latter I prepare at the right time populations that are truly gigantic, and the pasturage offered by the former, usually lasting at least three weeks, is my honey purveyor, though on account of the dryness last year it left me then altogether in the lurch. This year the oil-radish gave bee-pasturage for only ten days, and spite of the shortness of the time, I had different stocks which showed over seventy pounds of produce: indeed, as many here present convinced themselves at their visits to me, I had no stock which did not yield at least twenty-five pounds of surplus.'

Like other useful bee plants its value varies much with the season and the soil in which it is grown. Still more under these and similar influences is the buckwheat, which sometimes is a wonderful honey giver, whilst at other times not a dozen bees per acre can be seen on it. Hilbert says on his soil, though he grows a considerable quantity of it, it is useless in an apicultural point of view. Its variability indeed is attested by all who have grown it. (*Vide* Langstroth on the *Honey-bee*, p. 296, and Rothschütz' *Bienenzuchtsflora*, p. 123, &c.) Where it succeeds, however, it is a valuable autumn crop, coming into flower seven or eight weeks after sowing, and continuing in bloom a considerable time. One year when growing it, I was struck with the regularity with which the bees worked upon it during the morning hours only. Until noon it was literally alive with bees, by one o'clock not more than half-a-dozen stragglers were to be seen. The season was fine, and honey and pollen were carried in from other plants for some hours after, but this peculiarity with the buckwheat happened every day. Whether this is usually, or only exceptionally, the case I cannot say, but at any rate it shows the importance of observations at different times and in different seasons and in different parts of the country before condemning a plant as useless to the bees, for any one noting this field on a brilliant autumn afternoon, with some twenty hives only a few yards from it, would have naturally inferred that it was a very scanty honey-provider. But, Mr. Editor, it is just dawning upon me that I am swerving very considerably from the course indicated by the starting-point, and as hobby-horses are notoriously apt to go too fast and too far, it will be better, I think, before getting quite run away with, to dismount and subscribe myself,—

A Country Doctor.

BEE-KEEPING AND THE NEW COTTAGE HIVE IN GERMANY.

By C. F. H. Gravenhorst.

Before the end of the year 1876 I received, by the kindness of my friend, Mr. John Kirsten, Bridlington, Yorkshire, the annual volumes of the *British Bee*

Journal for 1875 and '76, and read them with the utmost pleasure. From that time I have been, and as I trust for the future to be, a reader of and contributor to that valuable and carefully edited paper. Up to this time I had not an exact idea of bee-keeping in England, but from the *British Bee Journal* I have learned that bee-keeping is an occupation highly valued in England, and that bee-keepers there are by no means behind the time. This connexion I hope may turn to our mutual profit. What I shall read in the *British Bee Journal*, and think worth mentioning, I shall translate for our bee journals, and all news I hear from our country I shall take pleasure in communicating to the *British Bee Journal*. Before proceeding in this way I have to tender my thanks to my friend Kirsten for his very careful translation of some of my articles from the Hanoverian *Centralblatte*, and to the 'Country Doctor,' who has also given an extract from the *Bienenzeitung* on the Gravenhorst hive. Perhaps the honoured doctor will allow me to refer to his translation from No. 26, vol. iii. June 1875, pp. 29, 30. He is in the right when he says, 'I am afraid, however, that there is a little animus running through this article,' &c. Wehmeyer was not the author of that article, but his brother-in-law, Hopf, who had departed from Gotha and settled in Brunswick, intending to establish a school for bee-keeping, and to sell hives and full colonies. Being only two years in Brunswick, he at last one night departed, and no one knew whither. I do not say he was a swindler, but the letter from Von Berlepsch, which Wehmeyer quotes, was a suppositious one. The Baron has given his judgment on the Bogenstulper or Gravenhorst hive in the *Bienenzeitung*, 1868, No. 1, pp. 5, 6, and this is by no means an unfriendly one.

The Wehmeyer article was refused by all German bee-journals, and the editor of the *Bienenzeitung* has only published it on my special desire. My calculation was not false. Since the publication of this exaggerated article and my reply, the new Cottage hive has found its way all over Germany and other countries. In Germany, in the province of Hanover, Brandenburg, Schleswig Holstein, Kingdom Sachsen, and especially in the Dukedom of Brunswick, it is the hive for the cottagers. Most of them have adopted it, and, what I highly esteem, with it the management of moveable comb hives, increasing in this way their income. Nothing will conduce more to bee-keeping than the profits gained by it. Show this, and take my word you will have plenty of disciples. This fact is clear as daylight to every one who will see it. In the Dukedom of Brunswick —I refer only to the city of Brunswick, a town of 70,000 inhabitants,—fifteen years ago there was only one bee-keeper keeping his bees in the old-fashioned straw hive. In the year 1863 I settled in Brunswick and made bee-keeping my sole occupation, being up to this time only an amateur. I began to work, and now there are here sixteen bee-keepers who had 1004 colonies this last summer. All the bee-keepers in Brunswick, except one, received the first impulse to keep bees from me, and were my disciples. To explain this I am obliged to say that I have shown every one my colonies, my management of bees, and, what was most attractive to all visitors, my honey store. And I had something to show.

In the years 1873 and '75 I extracted from some 160 stocks 6000 lbs. of honey, and I have had no less than 3000 lbs. in years in which the honey harvest was scant. All this, and a Bee-keepers' Association, whose chairman I have been since 1868, and which increased from forty to over one hundred members, may have added to the prosperity of bee-keeping in the Dukedom of Brunswick, and some sections of the province Hanover, and will explain to the reader the satisfaction I feel from the results of my endeavours.

But to understand me right I am obliged to give the reader some further information.

In the above-named provinces, especially in the province of Hanover and the dukedom of Brunswick, bee-keeping is an occupation on a great scale. There are stands from 30 to 300 stocks at the beginning of the season, and in every town and village you will find one, two, or more bee-keepers. Among their number are very few amateurs, the majority of them are cottagers, handicraftsmen, schoolmasters, &c., and all of them are grateful to their bees for their good comfort. Now should you think they were living in a country of milk and honey, as the Holy Bible tells of? By no means. We have here two regions which are very different from each other. In the dukedom of Brunswick, and some of the next Prussian provinces, the bees have from early in the spring till the beginning of July and August, good and often very plentiful pasturage; fruit-trees, rape, sainfoin, cornflowers, limes, &c., yield honey; but from that time till November they gather nothing except a little pollen. On the contrary, in the province of Hanover the spring and first summer pasturage are very small. But as soon as the buckwheat and the heath (*Erica vulgaris*) come in bloom in the beginning of July, August, and September, there is honey in abundance. At this time the colonies are multiplied and in first-rate order, then the bee-keepers may be able to harvest much honey and wax. Without spring feeding they would not be able to multiply and strengthen their stocks, and this would be very expensive for that purpose. Therefore, to spare some honey for feeding, they bring their stocks to such parts of the country where spring forage is abundant. In the month of March or April they load sixty to eighty stocks on long cars, and transport them at night some thirty to fifty miles. Having placed their stocks, they go home till spring feeding is necessary to induce the colonies to swarm.

In April they return to their bees to feed them some nights, and then again go home till the month of May. From this time they remain to manage their colonies. At the end of May till the middle of June is the swarming time. Every first swarm they will hive alone, but after-swarms they will unite, two, three, and more to make a good stock. Thus they multiply their stocks 100 to 150 per cent.

When, in the beginning of July, the buckwheat comes in bloom, they prepare for their departure and going home. They travel at night; but they go not alone. Their brother bee-keepers from that country where their bees have had forage go with them, transporting also their bees to the buckwheat and heath. The stocks of the latter remain there till the middle of of September.

In this way our bee-keepers have, if the year be not too unfavourable, always a good honey harvest. Certainly, their results would not be so great, did they not perfectly know how to manage their bees. The most of them are, as I have stated above, simple men, and do not know one particle of the theory of bee-keeping as given in books; but so much the more they know the practice.

The Baron of Berlepsch, travelling some years ago through our country and the province of Hanover, says in the *Bienenzeitung*, 'I am obliged to confess, the Hanoverian bee-keepers are the most skilful bee-keepers all over Europe.' Every one who has seen them manage their hives will perfectly be of his opinion. How can this be otherwise? They are not amateurs; their intention is to raise some extra profits of their bees, and have—this is the very bottom of the mystery—learned bee-keeping from their fathers and grandfathers, or have been trained by some of their skilful neighbours.

Our Bee-keepers' Association in Brunswick has 101 members. In the year 1876 there were wintered 5000 stocks, which were multiplied to 12,000 colonies, and given 225,000 lbs. of honey and 12,500 lbs. of wax. Ten stocks gave a barrel of honey of 300 lbs. In very good seasons seven to eight stocks give such a barrel.

Is bee-keeping paying? Yes, it is, when the bee-

keeper has a good pasturage, or seeks it, and when he does understand how to manage his bees in the right way; and at last, and not the least, when he has a good bee-hive, a suitable lodging for his little pets. And such an one our bee-keepers have. All of them, as far as those who do not keep their bees in moveable comb hives, have the bell-shaped old straw hive without a feeding-hole in the crown, without supers. The fly-holes are near the top.

As soon as the bees have filled the hive, one or two straw rings are put under to enlarge it. To feed they use wooden plates one inch high and eight in diameter. The plates being filled with honey, they lift the hive somewhat and shove under the plates. Should the wax sheets be too long, a straw ring is put under; and should the sheets be too short, then a wooden block is used to raise the plate as high as necessary, that the bee may reach the honey. Feeding in this way, thirty, eighty, or a hundred colonies is easily done. Feeding at the bottom of the hive is of much advantage, as we believe. The bees develope much warmness by sucking the honey, and therefore the queen is induced to go down and deposit her eggs in the lower parts of the combs. To protect the hives from rain and sun every bee-keeper has his bee-house in which the hives are placed on boards. The hives are facing the south-east. Such bee-keepers who winter fifty and more stocks, have a place surrounded with buildings in that manner. These bee-gardens are shut with doors, which afford many advantages. A thief cannot get a hive, and the wind cannot do damage to the bees. In spring-time this is of great value, as no bees can be dashed to the ground to perish there by the cold.

If the reader will remember what I have explained in the above sentences, he will at once understand how much our old practical bee-masters value their proved straw hive, and how hard it must be for them to change it for another. They are not blind to the advantages of the moveable-comb hives, but they do not like wooden hives. They have tried them, and found them not so good for wintering bees, their management very tedious, their manufacture too expensive, and their durableness far behind the old straw hives. I myself could not avoid thinking the same. The saying is, 'The wind in a man's face makes him wise.' I thought, would it not be possible to furnish the old hive with frames in a manner that might answer the purpose? To render my undertaking successful, I was obliged to change its shape and build the hive larger, because it is of the highest importance that every frame can be put in every place of the hive. Being successful by my endeavour, I constructed the 'Bogenstulper,' the new Cottage hive. A short description illustrated by some engravings the reader will see in the *British Bee Journal*, p. 81 and 82, No. 41, vol. iv., 1876.

All our old bee-masters are prepossessed in favour of this hive, and therefore it is the only hive they choose for managing their bees in moveable-comb hives. Why should they not? First, they are wont to use straw hives with a round top, to turn them over and manipulate from the bottom. They have no objection to the weight of the hive, because they know that many of their old hives sometimes weigh eighty lbs. and more, and these are more difficult to handle than the new hive. They know that it is only a very short time during the year so heavy, and this weight can and must be prevented by the extractor. They know that by turning over the hive, they may see how strong a colony is, how much provision it has, whether the bees are building drone, or crooked combs, &c., and that both can be removed instantly by taking out any frame they desire.

Second, they see the new hive is made of straw as their old one, as the best material for wintering bees, absorbing the moisture, keeping the bees in full health. Thirdly, it is made in the same manner as their old hive. Fourthly, it is the cheapest by self-manufacture; and fifthly, it will last as long as the old straw hive they got by inheritance from their grandfather. Of course, the new hive may not be to the liking of amateurs, but for such bee-keepers who do like a sharp and quick handling, and who will have from their bees the greatest profits, it will be found the best acquisition, at least in our country.

INTRODUCTION OR EARLY HISTORY OF BEES AND HONEY.

(*Continued from page* 180.)

Bee-keeping never flourished in any age of the world as it did after the sixteenth century. In 1609 Rev. Charles Butler, D.D., (the Father of English Apiarians) produced his first work on bees. I see in the interesting article written by Mr. Henderson (page 179, *British Bee Journal*) he claims for Mr. Butler the discovery of the drones being males, worker bees and queen, females; for Butler says, on page 54, 'I conclude that the drones are males, and that the ruler and the honey bees are all females, and that the bees are *not* copulative; but conceive in a secret, unknown way by the drones, that queens produce queens only, and that the common bees are the mothers of common bees.'

Now Aristotle (writing 1939 years before Mr. Butler's first work) says, in l. iii., c. 10, 'That it is the opinion of others that bees breed by copulation, and that the drones are males and the honey-bees females;' but he calls the ruler a king. It was left for that clever bee-master, the Rev. Samuel Purchas, to describe the ruler by her true definition, namely, 'Queen Mother.' In his work, *A Theatre of Political Flying Insects*, published in 1657, and on page 88 he says, 'Bees will swarm any time between eight and four, but the chief time of swarming is between eleven and one. Signs of after swarms are more manifest and certain, for about eight to twelve days after the first swarm is cast, the next princes will begin to tune in her treble voyce a mournful and begging note, as if she did pray her *queen mother* to give her leave to beegone, unto which voyce, if the queen vouchsafe to reply, turning her base to the young princes treble, as commonly she doth (although sometimes not entreated for a day or two), then she consents, and the third day after expect a swarm. The first day after the grant from the *queen mother*, how fair soever the weather may be, they will not go, and not often on the next day except it be very fair; but on the third day, though it be somewhat close and cloudy weather, they will swarm; but when it has been very cold and windy I have known them stay five or six days after liberty granted.'

Goedart (whose work appeared in 1662) spent forty years of his life in attending to the proceedings of insects,—'daily conversing with insects,' as he expresses it. Swammerdam published his celebrated work, *A General History of Insects*, in 1669; a more enlarged edition, in two volumes, containing the history of bees, was afterwards published in 1737, under the auspices of Boerhaave, from the manuscript of Swammerdam. It appears that Swammerdam stated, 'that from one female, the only one in the hive, all these kind of bees are produced,' viz., queens, workers, and drones. This is the first distinct statement of the fact of reproduction by bees,

so Swammerdam has the credit of being the discoverer of this important fact.

Dr. Gedde in 1675 published an excellent work on bees, *The English Apiary*, and obtained a patent from Charles II. for his invention of octagon hives of three stories, so Gedde was the inventor of the storifying system, and the now called Stewarton hives.

In 1676 Warder published his first work on bees, and was succeeded by Moses Rusden in 1679, who was the first to describe a frame put inside a hive for the bees to fasten their combs upon. (See *British Bee Journal*, Vol. I., page 75.)—William Carr, *Newton Heath Apiary, near Manchester.*

(To be continued.)

UNITING DRIVEN BEES—THE QUILT—EARLY BREEDING.

The unusual warmth on Saturday the 10th Feb. tempted me to overhaul one of my Stewarton Hives. The hive is peopled by two families of black bees, driven out of straw skeps last September, and furnished with an Italian queen in October. It is usually considered necessary to bring condemned bees from a distance when it is intended to unite them to other stocks, or build them up into new colonies; but I have not in my own experience found it necessary to use such precautions, as driven bees seem to stick to their new quarters just as well as natural swarms. These two families were driven one after the other into the same hive, and were thus summarily joined into one. The operation was performed at about 3 p.m., and the united bees were at once carried to my own garden, a distance of not more than half a mile, and speedily transferred into a Stewarton Hive. In about an hour I found that they had killed one queen, and were quietly settled under the sovereignty of the survivor. This queen was deposed in October, and the Italian queen accepted the vacant throne. The slides were withdrawn from this hive early in November, and a piece of Brussels carpet, cut to fit the hive, was tacked over the bars; two or three thicknesses of carpet were then put over this of sufficient size to overlap two or three inches on every side, and tuck down between the hive and its outside cover. As there is ample space between the top of the hive and the roof, and an inch on all sides between the hive and its cover, perfect external ventilation is secured; and all the vapour from the bees passes through the carpet, and is at once carried off into the open air without condensation. I found the interior of the hive thus protected, perfectly dry, and free from the slightest trace of damp. The three central combs contained a good deal of sealed and unsealed brood, and recently hatched bees were running over the combs. These must have been bred in January, and been reared exclusively upon pollen stored up in the autumn. The hive has not been fed or stimulated in any way, and I am inclined to think, from previous observation, that breeding in January is very common in strong healthy hives.—J. E. Briscoe, *Albrighton, Wolverhampton, Feb. 13th*, 1877.

BEES IN SWITZERLAND.

I send you the following extracts for insertion in the *Bee Journal*, should you think them likely to interest your readers. They are taken from a letter received a day or two since from M. de Gélien, of Colombier, near Neuchatel, Switzerland.

'The present year seems likely to be an early one, the temperature being altogether exceptional, the thermometer marking 52° F. at noon.

'My neighbour (who possesses an apiary of 100 and more hives, of which a good number have moveable combs) and myself have both to deplore 1876 as one of the worst years of the century for the bees; for my part I can only compare it with the year 1816, of disastrous memory. Of the 17 hives I left at St. Blaise, 12 only gathered sufficient for winter provision. I have been obliged to feed the others, after uniting four of the swarms in pairs, which in September had not an ounce of honey. The honey season came to an end with the first days of July.

'Thirty-four hives, of which 25 were of straw and 9 of wood, were weighed on the 20th September, 1813; and on the 31st March, 1814, they were found to have diminished in weight on the average 10½ lbs. The greatest consumption was 15 lbs. (wooden hive), and the least (straw hive) 9 lbs. My neighbour, with whom I have talked over the subject, thinks that an ounce of honey a-day suffices for the keep of a hive in winter. It seems to me that the consumption would vary with different climates and the length of winter.

'With regard to the distance to which bees go to gather honey: one perceives very quickly, it is true, by the greater or less heaviness of their flight on returning to their hives, if they have or have not found honey close by, but it is not easy to determine this distance with exactitude. Here is what I have remarked during my sojourn of thirteen years at St. Blaise. This village is situated at a quarter league from the foot of the mountain Chaumont, the summit of which, covered in summer with beautiful mountain herbs and flowers, rises to 1172 metres above the level of the sea; for very often, towards the end of July or during August, after the melliferous plants at the foot of the mountain and at the edge of the lake have finished flowering, those at the top of Chaumont being in full flower, I have seen my bees go out in that direction, and return from it charged with honey but fatigued, and resting a long time on the floor-board before entering the hive. It takes an hour and a half to mount on foot from St. Blaise to the top of Chaumont. This, then, would be the maximum distance to which bees extend their flight.'

I quoted your notice of Mrs. Stirling Graham's bee-keeping to my aged correspondent. He observes:—

'It is very true that the more one advances in age, the more also one feels the affection increase that one bears towards these admirable insects. I experience this specially at this time, as I have just entered my eightieth year.'

—J. H. Eldridge.

THE NADIRING SYSTEM.

In attempting to throw a *little* light on the subject of 'Nadirs,' or 'Nadiring,' in reply to your able correspondent 'Nethermost,' I feel I am venturing very much as an amateur, having no experience of the *advanced* (*i.e.*, bar-frame and extractor) system, and belonging to the class designated at the Alexandra Bee Show by the not very complimentary name of 'Old Fogies.'

I have been a bee-keeper about thirty-four years, and have tried collateral and storifying boxes, ekes both above and below the stock hive, glasses of almost all sizes, and supers of various shapes, but I have never countenanced the atrocities of the brimstone-pit, and have induced the bee-keepers (who laughed at me at first) for miles round to adopt an 'improved cottage straw hive and super' of wood and glass, either partially or wholly; and once, having succeeded, I never knew them to go back to the old system again. I should be very pleased to state the method I adopted if it would be of use to any bee-keeper wishing to promote a more humane system among the cottagers and others.

About three years ago, having a stock of bees that persisted in 'hanging out' instead of swarming, upon examination I found the floor-board was split, allowing the bees to pass through underneath, and, having heard of their building combs in that position, I began to try the nadir or under hive, not for 'breeding space' but for storing surplus honey.

I had some large straw hives made with large opening in top 10 inches diameter, capable of holding about 50 to 55 lbs. of honey. I fitted them with wooden top-boards, having four barred openings, and made floor-boards for stock hives with corresponding openings fitted with zinc slides to same, also a large window in back of nadir; I then tried five hives, but was a fortnight too late in placing them over nadirs. Neither hive swarmed, and produced about 25 lbs. of fine honeycomb each; this was in 1874.

In 1875 I tried several hives with nadirs, but owing to the bad season obtained but little honey; but all had comb in them.

Last year I tried thirteen hives, but one hive swarmed without filling nadir, the other twelve hives produced fourteen nadirs, two hives working two nadirs each; gross weight 563 lbs., also one large glass 27 lbs. weight and several supers, of which I did not keep an exact account, the twelve hives thus producing about 50 lbs. nett of very superior honey-comb. This honey was all taken without depriving the stock hives of their winter store. One hive I weighed after taking two nadirs, weighing 101 lbs. gross, and the weight was 49 lbs. This same stock in the spring was almost entirely without honey.

Thus I am quite of opinion that the nadir, or nether system—which I should be very willing further to explain in the *B. B. Journal*—is better adapted for obtaining large quantities of pure honey with the smallest amount of trouble than any other system I have tried or met with in my limited experience. I may venture one or two reasons why I think the nadir system has advantages over other methods. One is, the nadir being *below* the brood combs, is naturally cool and adapted for storing honey, while the bell-glass or super being *above* the brood combs is the hottest part of the hive; neither do the bees have to carry their surplus honey *through* the brood-combs, but pass at once to the store-hive to deposit their sweets. But its greatest recommendation is its simplicity, requiring no covering up, no ventilation, no manipulation, but may be worked by any one having the slightest acquaintance with bee-keeping. The taking the nadir may be effected without trouble or the slightest danger, and taking the honey from below never endangers the stock hive, which is sometimes the case in taking very large supers from the top. In conclusion, I may say I am, like the bee-keepers of Dunning, noticed by 'A Lover of Bees,' who are perfect strangers to foul brood, having never seen any, and I do not suppose I ever shall, as I have no doubt it is caused by the mode of working adopted.—An Essex Bee-keeper.

APICULTURAL EXHIBITIONS IN COUNTRY DISTRICTS.

When the idea of holding a Bee Show at Sherborne was first entertained I sent to Mr. J. G. Desborough, of Stamford, asking for information respecting the very successful exhibition that had been held under his direction. The particulars he gave were so useful and encouraging that I have obtained his permission to publish them for the benefit of those who may contemplate getting up similar shows during the coming summer. His letter was as follows:—

'I have great pleasure in giving you all particulars respecting the Bee Show in Burghley Park.

'When I first mooted the question before the Committee of our Horticultural Society and a joint Committee of the Northamptonshire Agricultural Society, the proposal was so novel that they would not entertain it. As time wore on I gave the matter anxious consideration, and I renewed my proposal, offering to take all responsibility as to extra expenses if I could have a space for the Show free of cost, and permission to charge an entrance-fee not to exceed 2*d*. This was agreed to; and the Bee Show thereby became virtually mine.

'The cost was as follows:—

	£.	s.	d.
Contractor for shed, including cartage of all material to the ground, removal thereof, and fitting up same complete; finding everything, except canvass, for covering and inclosure, and the net for the front	7	18	0
Hire of canvass, 200 yards, at 1*d*.	0	16	8
Net for front	1	2	0
Money-taker, and boy in attendance at outlet door	1	2	0
Painter, for large labels on canvass—'Bee Exhibition,' 'Live Bees'	0	11	7
Printing and advertising	1	10	0
Mr. Abbott, for expenses of journey and for one of his Cottage-hives given to a friend who supplied two stocks of bees for manipulation	1	10	0
Carriage and cartage of Mr. Neighbour's hives and other things to the show ground	0	7	0
Walton, for carriage of honey-slinger	0	5	0
Sundries, say	0	7	0
	£15	9	3

'The receipts were 16*l*. 11*s*. 2*d*., being for the admission of 1988 persons at 2*d*. during the two days' Show, besides a great number of my personal friends admitted free, and a large number who came through a second time, being known to the money-takers as having paid once. The latter, had I insisted upon it, would gladly have paid again; but as I saw my way to clear my expenses, I did not care to do so.

'Mr. Neighbour did not come to the Show; but Mr. Abbott did, and also Mr. Symington, who lives about thirty-five miles from me—at Market Harborough. These gentlemen were my guests during the Show, and neither made any charge; only, as the Show was a suc-

cess in a financial point of view, I paid Mr. Abbott's railway fare as a matter of compliment.

'Mr. Neighbour sent me an assortment of hives for exhibition, but none were sold; and Mr. Symington brought with him three small observatory hives, to enable us to exhibit the queen.

'No prizes were offered by me for hives or appliances; and there was no need for doing so, as the people were only too anxious to see the bee manipulation, or to look at the queens in the observatory hives, without looking at prize bee-hives.

'I had four hives for manipulation on the first day, and they were taken to the Show-ground at nine o'clock in the evening prior to the Show; and I took two more on the evening of the first Show day for operation on the second day. We made up a stock in one of Abbott's Cottage Hives on the first day; but as it was constantly being exhibited, by taking out the bars, on the second day, it did not survive long after the Show. The stock we made up on the second day, in one of Mr. Symington's Cottage Woodbury Hives, survived the winter. It has made a capital stock, and at this time is ready to divide into two.

'The canvas I had to cover the shed and enclose the space for manipulation in front was that used by the railway company for packing meat, and the agent let me have it on hire at a penny a yard, as it could be used for their purpose just as well after I had done with it; and the Company lent me a tarpaulin to draw over the shed at night in case of rain.

'I think I have given you all the information I can; but if any other question occurs to you, pray put it. You need not be afraid of people coming to see your "Bee Show." If mine had been open another day I should have had more people than ever. You cannot do without at least three people versed in bee-keeping—one to manipulate; another to assist him, and also to relieve him; and a third to explain to the visitors the why and wherefore of the operations and the results.'

That Mr. Desborough managed admirably the readers of the *Journal* are already well aware. But I fear that his outlay—justified though it proved to be by the result—was larger than many bee-keepers would feel inclined to risk. Hence the urgent necessity for enabling the Central Association to purchase a tent with a complete set of fittings, which would be available for the show of any country society. Surely there is sufficient enthusiasm amongst our members to cause them to subscribe towards the Tent Fund.

It is not every district that is fortunate enough to have a generous and enthusiastic bee-master like Mr. Desborough in its midst; but the number of such gentlemen will increase if the proper steps are taken for enlisting helpers and awakening interest.

Local exhibitions are eminently calculated to do this; and one of the principal wants for all such occasions is a good tent. Even at Sherborne, where things were managed as economically as they could be, the outlay for tent, &c., amounted to a considerable sum more than it would have been if a suitable tent and fittings could have been hired of the British Bee-keepers' Association at a reasonable price, while the result was, of course, less satisfactory.—C. T.

BONNER AND EARTHENWARE HIVES.

I think it is very likely that the pair of earthenware hives described by 'A Renfrewshire Beekeeper,' in January *Journal*, had been used as outside covers, and not hives, and that Dr. Evans had been mistaken in supposing that 'Mr. Bonner proposed to have hives made of earthenware.' In the edition of Bonner's works in my possession, in describing how hives ought to be prepared for winter by covering them 'all over with a large quantity of pob-tow or straw,' he goes on to say, that—

'The best of all covers for hives, however, that I have yet seen or heard of, are such as I ordered a potter to make for me of burnt earthenware. They are made in the form of a hive, pretty strong, about 21 inches wide and 12 deep, with a circular edging turned up at the skirts, and a spout about an inch in length. These being placed above the pob-tow or straw, keep it close to the hive, and may easily be taken off or put on at pleasure. The spout being placed behind, all the water runs off at the back of the hive. The hives, when thus covered, may be compared to a man's head with a wig and hat upon it, the pob-tow resembling the wig, and and the earthen cover the hat. The only objection to these covers is, that they are brittle and easily broken; but the care that every good bee-master will readily bestow upon his hives in any case is sufficient to preserve them from accidents of this kind. I sold about thirty of these covers to a gentleman in Northumberland, about three years ago, and I have reason to believe that there is not one of them yet broken.'

Jas. Bonner's work on bees, although it contains some little errors in their physiology, is very interesting and well worth any one's perusal.

His system of management was, in almost every particular, the same as Pettigrew pursues and advocates at the present day.

In the preface he tells us that—

'He had been an admirer of bees and the fruit of their labours almost from his infancy. When a schoolboy, he read with peculiar pleasure the description given of Canaan as a land flowing with milk and honey. Being appointed by his father, when a boy, to watch his bees in swarming time, his fondness for these wonderful insects daily increased, and he could not help thinking himself in a kind of paradisaical state when employed in this delightful office in his father's garden, and running among the blooming bushes and variegated flowers to look after the young swarms. When very young, he purchased three hives, which he gradually increased to a pretty large stock.'

He tells us also 'that there is no concern in rural economy more profitable than bees,' and gives an estimate (by the rule of geometrical progression) of how five hives may be increased in ten years to 2500 hives.

He deplores the neglect of bee culture in Scotland, as a loss to the nation at large, and shows how easily it could be extended.

'Estimating the number of parishes in Scotland capable of raising bees at 800, and with twenty stock hives in each parish, he calculates that in eight years the number might be increased to two millions of stock hives, producing four millions of pints of honey and one million of pounds of wax.'

So great was Bonner's 'curiosity and enthusiastic attachment to the study of bees, that he went from Berwickshire to London (a feat in those days) on purpose to converse with Mr. Wildman on the subject; but that gentleman happening to be in France at the time, he contented himself with purchasing every book he could find on the management of bees. At the time Wildman was performing such wonderful feats with bees in London, Bonner is in

Edinburgh equally capable of performing the same skilful manipulation; for in a foot-note to the chapter on driving and uniting, or reinforcing, bee-hives he says :—

'I could put *twenty* hives into *one* if necessary; I can cause my bees to rear as many queens as I please; I can rob my bees of part of their honey at any time; I could carry 100 bee-hives to London or Russia; I could rear 5000 bee-hives in a few years, if desired by any gentleman of property; I could travel through the streets of Edinburgh with three swarms of bees about me, unhurt; I can take a swarm out of any hive at any time; I can take 10,000 bees from ten different hives and unite them into one hive; and I can reinforce a weak hive with bees from any number of other hives, and from being the WORST, make it the BEST hive in tho county; I can unite the bees of forty hives into thirty, twenty, or ten hives, and next summer divide these ten hives again into forty swarms; if I have a weak hive suffering by robbers I can strengthen it with more bees, and can make them fit to rob any hive in the neighbourhood. If I have a hive of bees perishing with poverty or famine, I can make it the richest hive in the place, or within many miles around; I can take a common bee egg and cause the bees to raise it to be either a queen or a common bee, as I please. I can make my bees rest upon myself or any person near me without offering us the smallest injury; and I can make them fall upon us with the fury of as many dragons; so that we would be glad to fly with as much precipitation as a few rioters would do before a regiment of dragoons.'

Bonner's instructions and directions how to manage bees all the year round is intelligible and practical, and contains much sound advice; and, with your permission, Mr. Editor, I may, at some future time, give a review in your columns of the practical part of his work, from which your readers will see that the present system of straw-skep management must have been well known throughout Scotland long before Carluke was heard of.—J. S., *Arbroath, Jan.* 9, 1877.

SYRUP.

Your correspondent (p. 144) who is troubled by the crystallization of his syrup will, I think, find that the addition of a little more water before boiling will prevent it. When the syrup boils thoroughly it will suddenly become clear, and if the boiling be continued after this about five minutes, and the scum removed, there is generally no subsequent crystallization, and the syrup will remain liquid for months, unless exposed to considerable cold. Perhaps 'Bee-keeper' has been feeding with liquid food in November, and '*hinc illæ lacrymæ*.'—H. JENNER FUST, Jun., *Hill, Gloucestershire.*

SYRUP FOR BEES.—WILLOW HERB.

In December number 'A Bee-keeper' asks how to prevent syrup crystallizing. Let him make barley-sugar according to the method given in the *Journal* in 1875, and put it in a damp place to deliquesce spontaneously. The syrup thus formed will never crystallize. Or let him proceed as directed for making barley-sugar up to the skimming stage, and then, instead of boiling out the water added at first to dissolve the sugar, add more, until of the proper consistence, keeping the temperature as high as possible. The combined effects of high temperature and dilute acid convert the sugar from the crystalline to the amorphous state.

An excellent plant for bee-food, which I have not seen mentioned in print is, *Epilobium lanceolatum*, better known as 'Willow herb.' Although a wild flower, it is an ornamental plant well worthy of a place in every garden. It grows about five feet high, and blooms profusely from June to August. The flower is like Clarkia. I have seen some hundreds of bees at once on a patch of about four square yards.—'DR. PINE.'

THE GRIFFIN HIVE.

Allow me to draw attention to two errors in the description, in the January number of the *Journal*, of the Griffin hive. On page 158, Fig. 3, the engraver has represented the hive as having a rim or moulding outside on the upper edge of the hive; whereas in the original the outside walls are perfectly plain. The other is simply a verbal error on page 159. The passage in brackets that reads thus, 'three frames being removed,' should be as follows, 'three frames being left in.'—WM. N. GRIFFIN, *Alphington, Exeter.*

AN UNSUCCESSFUL SEARCH FOR QUEENS, AND THE CONSEQUENCE.

In writing to you for the Ligurian queens—the delivery of which had been delayed—I expressed a fear that a stock I had transferred from a straw skep to a bar hive had by some mishap been deprived of its queen. On the 9th of October, while standing near this hive in the middle of the day, I thought I heard a drone's loud buzz, and on looking at the entrance saw a queen alight, who would soon have been in the hive, but, quick as thought, I caught her and carried her into my workshop and placed her in a queen cage, made after the manner of the Rev. Mr. Raynor's. She was quite lively and spirited, and I had the fullest proof that queens are harmless to handle, as I had no gloves on at the time, and she was held in the hollow of my hands for some time, with every opportunity to use her sting freely. I put her into the hive between the bars near the middle of the hive, and in less than twenty hours after, I found her lifeless at the bottom of the cage in which I had placed her. Would she have starved for want in that time? I had had not taken the precaution to place her near some open honey cells, as I thought the bees would feed her. On the 13th of October, knowing by your note that I should soon receive the three Ligurian queens ordered, I opened the hive from which this queen had issued, and two others, when the mystery was partly explained, for I found a queen cell, out of which a queen had recently issued, and one not quite completed, but containing no brood of any kind. I searched very closely every bar, but could find no queen, so concluded that the one caught had been recently raised by the bees from a worker egg, and

was evidently trying her wings for the first time when I caught her. I then examined the bars of the other two hives, taking them out one by one; and though we repeated the operation, and for greater certainty did not replace them in the hive until all were removed, strange to say we could find no queen in either, and night approaching we were obliged to relinquish the search. The Ligurians having arrived, and knowing I should have no time to renew the search for a day or two, and fearing there would be danger in putting them into cages, I determined to invert the boxes in which they came over the hives we had been searching in, as I knew from the stirring up they had had that the bees would be well glutted with honey, and therefore in tolerable good humour. I first gave them a puff of smoke each, and placing the boxes over the feeding-hole left them to fight it out, if necessary, as the only alternative. Two of the three have to all appearance taken kindly to the new-comers; but in one, alas, I saw the dead body of the queen with many of the worker bees sent with her who had evidently stuck loyally to her to the last at the entrance of the hive next morning. In one of the others active breeding must have commenced directly, as on the 15th of November, the day being warm and sunny, great numbers of young Ligurians were out lingering about the front of the hive, and though in the other I have seen no young ones as yet, I have every reason to believe the queen is all right. As no fighting took place and no dead Ligurians were found, I think I may congratulate myself upon the result as a whole. One of the advantages of the Ligurians is, that you may more readily distinguish the queen from the workers, and where a number of bees are kept this is no small matter, though the very difficulties I had to go through in endeavouring to find the queens have given me greater confidence in handling the bar hive, and made me pleased that I had by your advice adopted it, as I have learned more in one year by its aid than in the whole fourteen or fifteen years I had previously kept bees on the old and now exploded system.—C. Shufflebotham.

SUNFLOWERS, THE QUILT, AND SMOKERS.

I see your correspondent, 'C. S.,' wants to know what others' experience of sunflowers is. I have often heard that they are good for bees, and this year planted a good-sized patch near my bees, and although they were some of the finest I have seen, I only saw one single honey-bee on them the whole time they were in blossom, but from first to last there were plenty of dumbledores on them; so I shall not plant them for the bees in future.

Have any of your readers ever tried sawdust for quilts? I have some, and find them answer very well. Make a frame the size of top of hive and cover it on both sides with carpet, or anything stout, previously filling in between with dry sawdust about one inch thick.

I use brown paper for a smoker, and find it does very well, but find that the dark brown does better than the lighter, for if rolled up tight it will smoulder until it is all burnt, and by holding it in one hand, the smoke can be directed anywhere by blowing it.—W. T. J., *Farnham.*

CAUTION AS TO THE USE OF FEEDERS.

Under this heading 'Bee-keeper' writes in the January *British Bee Journal*, and advises 'those who use feeders to see that the syrup regularly and gradually decreases, or the bees may starve while "crowned with plenty,"' as of late he has 'been greatly bothered by the crystallization of syrup' preventing the bees getting at the food. Having been troubled in like manner, and seeing in the *Journal* Finzel's Bristol Centrifugal Sugar recommended, I at once got some, and am now quite free on this score, having never met with the slightest crystallization.

A query naturally arises: If crystallization takes place in the feeders, what is to hinder it doing so in the cells?

I use Mr. Abbott's receipt, viz. 5 lbs. sugar, 2 pints water, and half a wine-glass of vinegar boiled for a few minutes.—Wm. R. Griffin, *Alphington, Exeter, Hon. Secretary of the Devon and Exeter Bee-keepers' Association.*

APIARIAN MEMORANDA—SOUTH WILTS.

On page 181 of the *British Bee Journal*, Mr. J. H. Eldridge suggests that I should supply a paper that would afford some information as to the consumption of honey by bees during the winter months. My figures will but imperfectly meet his wishes, as they were recorded merely for my own amusement and information, and with no idea of their appearing in such a scientific work as our *British Bee Journal.*

My bees are in cylindrical-shaped straw hives, each having a super that will hold from 24 lbs. to 28 lbs. of honey-comb. A hole, not exceeding one inch in diameter, allows the bees an entrance into the super. This hole is kept open at all times after the bees have built sufficient comb in the large hive. The following statistics refer to bees that were left undisturbed during the time. Some seasons were mild, others severe.

Decrease from			lbs.	ozs.	
Sept. 1st, 1844, to	Mar. 1st, 1845..	8	4	.. 7	hives.
,, 1845, ,,	1846..	8	3½	.. 5	,,
,, 1846, ,,	1847..	8	12	.. 5	,,
,, 1847, ,,	1848..	8	1½	.. 11	,,
,, 1848, ,,	1849..	8	3	.. 10	,,
,, 1849, ,,	1850..	8	11	.. 19	,,
,, 1850, ,,	1851..	8	0	.. 17	,,
,, 1851, ,,	1852..	9	5¼	.. 26	,,
,, 1852, ,,	1853..	8	1¾	.. 40	,,

Making an average for the 9 years of 8 lbs. 6½ ozs.

The exceptionally large decrease in the winter of 1851–2 may be accounted for in this manner:—The honey season lasted till the middle of August, so that the large decrease of the first month (from 5 lbs. to 6 lbs.) was only in part felt. In this place the bees, as a rule, do but little after July. The loss of weight from the end of the season to the 1st of March is about 14 lbs. This winter (1876–7) the loss of

weight will be unprecedentedly little, on account of the 'ivy harvest.' Bees strong and healthy.

The following will be a fair monthly average loss. From August 1st to March 1st (1848–9) :—

		lbs.	ozs.
August..	very stormy	5	0
September	changeable	2	10
October	wet, changeable	1	8
November	wet, changeable	0	15½
December	mild, rainy	0	14½
January	changeable, frosty	1	5
February	mild, fine..	1	5
		13	10

A day's work—May 29th, 1851, very fine day :—

	lbs.
Weight at 6 a.m.	28
,, 9 ,, ...	26½
,, 12 noon	27½
,, 3 p.m.	28¼
,, 6 ,, ...	30
,, 7½ ,, ...	30¾
Next morning at 6	30

Net increase, 2 lbs.

June 4th, 1874.—One hive secured a net increase of 5½ lbs., thermometer 74°, 23 hives in the garden.

A hive swarmed, June 5th, 1868, that had produced no drones during that or the preceding year, and did not till the year following. The swarm did not produce drones before May 20th, 1869.

As a contrast to the foregoing, in the year 1848 a hive did not swarm till 65 days after the first appearance of drones.

The following facts* may prove a warning to bee-keepers not to neglect their stocks in the spring. Stock hives fell to their lowest point as under :—

1850, May 17th.	1854, May 13th.	1859, May 9th.
1851, May 17th.	1856, May 21st.	1860, June 9th.
1852, June 24th (!)	1857, May 12th.	1872, May 21st.
1853, May 13th.	1858, May 26th.	

—James Bristol, *Tisbury Academy.*

QUEEN-RAISING AND INTRODUCTION.—POLLEN PELLETS.

Such a small thing to write about, and so much to say about it. I was in a quandary what to say until I read your reply to No. 181, page 134. I then thought that the subject of introducing queens, with observations thereon, might come well in at this time. I will, therefore, give your readers an account of my experience in the raising and introduction of queens. In my last article I gave my experience of queens being encased by strange bees at swarming time, and the great danger arising from joining strange bees to a stock hive; the result of two queens that were encased at swarming this year. I now record their deaths, and instant successful joining of two Italian princesses to the hives after they had been queenless for more than a month, While joining such queens, or any, I never admit them unless I see they are anxious for a queen, which is very easily done by simply placing the queen in the box on the top of the hive, and allowing the bees to ascend; if they are anxious for her, they will at once swarm round the box in great numbers. I then admit at once whenever they are quieted down, and I never had a failure in this way. I may here observe, however, that hives that would appear to many to be under the very same circumstances would not accept a queen, however cautious you might be in introducing her. The difference in the two is, however, very great; in the former narration of the two queens there were neither eggs nor larvæ in the hive at the time of the queen's death, and under these circumstances a queen may be safely introduced at any time; but if, on the other hand, eggs or larvæ are in the hive, it often happens that a fertile worker makes its appearance, then it is a rare chance, indeed, if a strange queen will be accepted. Thus, great care is required to see the real state of the hive, from the death of the queen till the introduction of an alien one, so that no chance of a fertile worker may be there. As this is the cause of many failures in the introduction of a strange queen, it sometimes happens—nay, often, that queens leave the hive on being introduced; if at all lively, she becomes excited, and makes straight for the doorway on being introduced, and is never seen more; and the same excitement occurs when strange bees are joined, on which the queen is more likely to be encased. In joining either queen or bees, quietness should be the great aim of the bee-master, if success is desired.

A very interesting account of queens occurred with me during the summer of 1875. A stock-hive swarmed, and in ten days the young queens, five in number, commenced piping; these continued piping for other ten days, or from Saturday until the second succeeding Tuesday. On that day it swarmed, a second swarm immediately after. I opened up the hive took from it one queen, and caged her, and placed it for other eight days on the top of the mother hive. I then cut out another cell, and placed it on the shelf of the bee-house, and the queen crept out instantly. I secured her, and placed her in a cage, and placed her over the top of a hive supposed to be queenless, but in which I was disappointed. Immediately she was placed in the cage, she greedily filled herself with honey, she then gave a sharp cry, and, extending her wings, she darted rapidly downwards to the interior of the hive (this was all the work of about a minute). I immediately turned round to the place where she was hatched, and where the cell was still lying, when, lo! there was the self-same queen that I had just introduced sitting on the very spot and cell that she was hatched from. How she found it out, is, indeed, a mystery, unless, indeed, it was by the smell: it is, however, a puzzle for the naturalist. I then secured her, and caged her; her future destiny I will again allude to. The fifth queen was in the course of the day thrown out. Although these queens commenced piping on the tenth day after swarming, when anyone of them might have hatched, had they not been guarded by the worker, and prevented from leaving their cells. (The tenth day is a common one for queens to hatch after the stock has swarmed, but has no relation to the evolution of the queen. After watching hundreds of queens, I have never known one to hatch before the sixteen days, or on the seventeenth day after the egg was laid.) Had they been let alone, every one

* Most valuable facts, and in strict accordance with our experience.—Ed. *B. B. J.*

of them would have been hatched not later than the twelfth day after swarming; but in this case twenty-six days intervened from the laying of the egg till the queen was hatched. Reverting to the queen of the second swarm, on twentieth day, after hiving and hatching, she was a mother, hundreds of young bees were hatched on that day. The queen of the stock hive remained a drone-breeder, the other was prevented, and the one that had returned to her hatching place was joined to a nucleus of bees, and which in fourteen days she was impregnated; but on the day following I observed her coming out, and for other seven days in succession I kept constant watch for three or four hours each day, every day she made a number of attempts to mate, but on the eighth day I had to leave, and that day she appeared to have mated, but, unfortunately, I had a strong hive bent on robbing, and this hive was attacked, but by this time she had laid a large number of eggs, so, unless the second swarm, ends the history of these interesting queens.

Referring to 'Questioner' on the bees refusing to raise queens after they had been queenless a month, my experience differs from this. I have given bees brood in April and May, and they have raised queens, although they had lost their queen months before. The raising of queens by bees is on the same principle as accepting or refusing a queen; it depends entirely upon the question, whether fertile workers are present or not. These abnormal insects are the common barrier to success, and the stumbling-block to many a bee-keeper. There is one subject on bees I would like to have explained and see well ventilated, that is, the question of pollen; we are told that the bees knead it into little pellets, and place it in the little basket on the tibia of their posterior legs. Now, all this sounds very well in a piece of poetry or the common school-book, but to a scientific bee-keeper it is not explicit enough. My own opinion is, that it accumulates in little pellets, not by design, but that it is natural that it should do so; when the bee alights on a flower to rob it of its pollen, its head and anterior legs are first brought into contact with it, and in succession to the hinder legs. When it is no longer the mealy-looking pollen, but a paste; that change appears to take place immediately it comes into contact with the pollen basket, where a glutinous substance is secreted and mixes with the pollen, and so forms the pellet, and changes the taste of the pollen, and forms the well-known bee-bread.—A Lanarkshire Bee-Keeper.

A FEW NOTES ON THE PAST SEASON IN NORTH CHESHIRE.

This being the general season of stock-taking, I have been indulging in a retrospect of the past bee season, and according to my 'notes' I find, that while I cannot boast of the extraordinary returns chronicled by some fortunate bee-keepers (who are, I suppose, more favourably situated than myself), yet I have 'much to be thankful for' in many respects. I had in the spring twenty-six stocks, three of which I allowed to swarm; two were very weak in bees; and three colonies in straw skeps I found were attacked with foul brood, so I gave them a 'short shrift,' and burnt hives, combs, and all. Thus I had eighteen good stocks to work on, and the middle of June found me feeding the most populous hives to keep them going, with very small hopes of an average harvest; however, the change came on the 17th, on which date I commenced supering, and when I removed my last glass on the 27th July, I found the whole of my super honey weighed about 530 lbs. This I considered a very fair six weeks' work, especially as the quality was superior all through to any I have had in my ten years' experience as a bee-keeper.

I had the pleasure of exhibiting my harvest at three local shows, and out of thirty-eight boxes and glasses, weighing from 5 to 30 lbs. each, only found it necessary to leave one behind as unworthy of a place on the show table.

We never attempt in these parts to put a fancy price on our honey, and one happy result of this is, mine is all sold; the price (1*s.* 4*d.* per lb.) is a fairly remunerative one, and if all our bee-keepers would give up trying to get 2*s.* or 2*s.* 6*d.* per lb., I think honey as an article of diet would come into more general use. Housewives have a knack of saying, 'It's dearer than butter,' and so its use is usually confined to the medicine chest; whereas, if we make it an *economical* substitute for butter, it would be used in pounds instead of ounces, and we shall not have the disheartening repetitions of advertisements in your columns respecting honey.

My apiary now consists of thirty-five stocks, all of which I am sanguine of carrying through the winter—at least, so far as care and 'knowledge of contents' will tend to that desirable end—for none are either queenless or short of food; they are well ventilated, dry, and safe from storms or frost, and to judge by the grand 'turn out' which took place yesterday (the day being warm and sunny), all are in excellent condition.

I can 'tot up' a net profit of between 30*l.* and 35*l.* from my bees, besides prizes at shows (special ones at each place), and altogether the season has been very satisfactory.

At one of the local shows where I exhibited a somewhat unpleasant incident occurred, which I name here in the hope that the subject may be thought worth ventilating in your columns. I was not present when it happened, but a gentleman, in the hearing of a friend of my own, on examining my display, remarked, 'It's very beautiful to look at, but in point of fact it's not honey at all. I know all about it; it's merely sugar and water.' Of course my friend got angry, and knowing as he did that my bees had not had one ounce of syrup during the six weeks they were gathering honey, an argument ensued, which I need not repeat here; but the question arises, Did all the onlookers believe in the genuineness of what they saw? I was very much annoyed when informed of what had occurred, as I have the greatest contempt for 'shoddy supers,' and everything but the *bonâ fide* article, 'gathered from flowers in the natural way.'

As one result of the above incident, I have been shown a small book or pamphlet, written by a gentleman in Wales (who I hope and believe is not

a bee-keeper at all), in which his readers are coolly informed that they can 'make their bees store honey for eight months out of the twelve by keeping them supplied with sugar and water, and that no difference can be detected between it and flower honey.'

I am also told that the late Mr. Pagden reasoned much in the same way, so this must be 'how he made 70*l.* a year by his bees;' but, Mr. Editor, I think that you, and all of us who would make bee-keeping an honourable as well as pleasant rural pursuit, should protest against this sort of teaching. Surely some simple test or analysis can be devised, which will enable judges of honey to detect the spurious article from the genuine; so that, if 'sugar and water' is exhibited as honey, its owner may be prohibited from ever exhibiting again, and his name, &c., published in 'our *Journal*.'

I must confess I am staggered when I read of three hundredweight of honey being obtained from a single hive this season, and I have been asking myself the question, Can it be genuine? or are these enormous returns the result of feeding as advocated in the publication I have named?

Of course I make allowances for difference in situation in honey districts, and regard my own as a fairly good, but not first-class one. Now, I have never myself obtained more than 67½ lbs. of super honey from one hive, leaving the stock about 50 lbs., or a gross weight of 117½ lbs.; this season my heaviest yield was a shade under that weight, and the stock was one of the strongest I ever saw. This is not much over one-third the weight quoted above, and I suspect my feeling of suspicion is very similar to what is felt by my cottage neighbours, when they see what my bees can do in comparison to the miserable returns of 10 or 15 lbs. per hive (which is about their average in a good season); but there is this difference: I have the very best hives and materials to work with—I trust I am not behindhand in knowing how to manipulate them—so, save that I have only black bees and no Ligurians, I cannot see why I should be so very much behind, especially as I have never missed a fair crop of honey for the last ten years, and in good seasons have done very well indeed. You see, while I am myself suspected, I find myself suspecting others; so it shows the absolute necessity of a means by which the genuineness of honey may be determined. I fear I have taken up too much of your space, but hope in a future number to 'return to the subject.'—Wm. Broughton Carr, *Higher Bebington, Cheshire, Jan.* 8, 1877.

ADULTERATION OF HONEY.

I am glad to see that this subject is considered of sufficient importance to be occasionally noticed in the *Journal*, and I beg leave to give your readers a hint as to one form of adulteration which has not yet been noticed. I have it on the authority of a highly respectable grocer of my acquaintance. There is a refuse of starch manufacture, I believe, called 'glucose,' which is nearly valueless as pigfeed, and therefore can be obtained at a nominal price. A ton of this stuff well mixed with a ton of foreign honey and put in fancy pots, sells well at a low price as 'fine run honey.' It is usually sent from the metropolis to crowded localities and large towns.

Can any one give more explicit information about this 'glucose?'—G. C., *North Wilts.*

EARTHENWARE HIVES.

I have two of these, similar to those described by a 'Renfrewshire Beekeeper' at p. 166, only smaller. There is, however, one important particular in which they differ; his are glazed externally, while mine are of very fine porous clay, like terra cotta, and unglazed, the idea being to allow the vapours to gradually pass off. The hive, however, is intended to be kept in a warm room, otherwise the coldness of the external air would condense the evaporating moisture upon the hive, and cause wet and cold. They have never been used, but perhaps will be this season. I hope the 'Renfrewshire Beekeeper' will report success or failure with his.—H. Jenner Fust, Jun., *Hill, Gloucestershire.*

THE SEASON.

'How beautiful is the rain!' (eminently beautiful and refreshing, my dear Longfellow) 'after the dust and the heat' of a fortnight or so of parching winds and sultry summer weather. But when the rainfall averages something like eight modest inches in half that number of weeks, the quotation requires modifying before it is altogether applicable. As a people, Englishmen have long been saddled with the reputation of being the best grumblers in the world; and with regard to changeability of weather in our exceedingly moist climate, there is, it must be admitted, some little excuse for the national failing.

Whether the extraordinary mildness of the season will be ultimately beneficial or otherwise to bees remains to be seen. My hives—well protected from the wet and with quilt on top—are exceedingly populous, and very much stronger than at this period last year. Since the middle of November last the bees have taken advantage of every fine day—the latter somewhat rare perhaps—for pollen-gathering. A few days since I counted twenty-seven bees laden with pollen enter one of my oldest hives in the space of one minute and a half. The sun was shining brightly overhead at the time, and not a cloud in the sky; a thermometer close by registered 65 degrees! And this is mid-winter, bear in mind, my friends and fellow-workers in the golden fields of apiculture! On January 16 last I noticed a butterfly out for a holiday, whilst at the same time hundreds—perhaps thousands—of bees were on the wing to the tune of 'O, be joyful!' and pollen-gatherers were especially busy. Primroses and violets made their appearance before the close of last month. Fruit buds are swollen almost to bursting; and if—'if'—there should be no interval of cold weather, the season *must* commence some weeks in advance of the usual period. Tom-tits have been unusually troublesome this rainy season—*winter* it can hardly be termed. Had they been allowed to pursue the even tenor of their way to their own satisfaction, not a bee would now be alive in my apiary. A friend of mine, some

few miles distant, writes that he has lost all his bees (two hives) by the tits. From experience, I find that scarecrows, of whatever size or shape, are treated with scorn and contempt. As a *dernier ressort*, the effect of a few pounds of No. 9 shot was tried. The gun is the only really effectual way of stopping their depredations; and from this time forward I hereby give public notice that if Mr. Tom Tit is seen intruding his unwelcome impudence in my apiary it will be at his own imminent risk.—ALFRED RUSBRIDGE, *Hive Manufactory, Sidlesham, Chichester.*

MEAD.

I see in *B. B. Journal* for this month an inquiry from John Robb, Holbeach, for the best method of making mead. If the enclosed is of any use to him he is quite welcome. I cannot say positively that it is the best, but it is the way in which mine has been made, and it certainly is *very good*. There are, no doubt, other methods, but I have not tried any other but this:—

After the honey has drained from the combs place the empty combs in water, quantity according to what you intend making, let them remain for two or three days; this water must then be able to float an egg, if not sweet enough add honey until it will do so. Boil for about one hour, and as the scum rises take it off. When lukewarm set it to rise by placing in it a piece of toast dipped in yeast. When done working, bottle; but do not cork for some few days.—J. T., *Feb.* 11, 1877.

HUBER—COLLATERAL BEE-BOXES.

Perhaps this may be thought worthy of a place in your *Journal*. I found it in looking over Fitch's celebrated MSS. in the Ipswich Museum. Francis Huber, the great bee historian, was born in Geneva, 2nd July, 1750. By the date beneath you will see the extract was written many years before he commenced his wonderful study (being blind) of the *Anatomy and Study of Bees*:—

'Collateral Bee-boxes; or, a new, easy, and advantageous method of managing bees. In which part of the honey is taken away in an easy and pleasant manner, without destroying the bees. Early swarms, if desired, are encouraged, and late ones prevented by Stephen White, M.A., Rector of Holton, in Suffolk.

'Sic Vos *jam* Vobis.

'Pauperis est numerare Pecus.'

OVID, *Met.*

'London: printed and sold by Lockyer Davis, and Charles Reymert, against Gray's-Inn-Gate, Holbourn, 1756.'

In looking over my hives I found them very light. I had fed them now and then. But would it not be advisable to acquaint amateur bee-keepers to feed them this warm, muggy weather? They are, in the middle of the day flying about like summer. I bought some of Neighbour's bee barley-sugar. I wish you would kindly inform him that were he to make the stick flat and thin they would be easier to slip into the hive. They have eaten mine ravenously; and whilst feeding them I find the round sticks difficult to get in, giving them plenty of time to dart at my fingers.—W. P. BARKER, 100 *Anglesea Road, Ipswich, Feb. 9th*, 1877.

VARIOUS ITEMS.

By this time I suppose you have settled to your new residence, where I hope you will enjoy health, and all the good things of this life for many years to come. It seems strange to write you at any other place than Hanwell, but I trust you will make as many friends at your new home as at the old one.

At this dull season, perhaps, it will interest you a little to know that I came across an old book of 1749, entitled a *Vade Mecum*, and amongst other matters were directions for the management of bees, thus:—

'*January.*—Turn up your bee-hives, and sprinkle them with a little warm and sweet wort.

'*February.*—Nothing.

'*March.*—By this time the bees sit, therefore keep them close night and morning if the weather prove ill.

'*April.*—Open your bee-hives, for now they hatch. Look carefully to them, and prepare hives, &c.

'*May.*—Set your bees at liberty, and expect swarms.

'*June.*—Look to your bees for swarms and casts. Destroy insects.

'*July.*—*Straiten* the entrance of your bee-hives, and help your bees to kill drones, wasps, &c. by setting glasses of beer mingled with honey for them.

'*August.*—Nothing.

'*September.*—Take up your bees, and straiten the entrances of such hives as you leave.'

September, I suppose, ended the bee-year, as nothing more is said about them.

They seem to have known a little about bees a hundred years ago, but the March direction about their sitting is rather amusing.

I had a bit of luck the other day in catching and killing about twenty queen wasps that had taken up their abode, for the winter I presume, under some tarpaulin on a shed close to my hives. They were all reposing with their wings wrapped under their bodies, and holding on by their mouths, teeth, or jaws; I gave them a short shrift.

The late mild weather has not been healthy for human beings, as I can testify, so don't expect it is very good for other bee-ings.

I like your Prize Hive better than any other I saw at Worcester. I hope yourself and sons will prosper in the School of Apiculture, and only wish I lived a little nearer so that I might become a scholar.—HARVEY WALL, *Rushwood, Droitwich.*

THE EXPERIENCES OF A NOVICE.

As bee-keeping is becoming so much more universal than it was a few years since, and will undoubtedly become annually more so, I think some of the experiences of a novice may not prove uninteresting to some of the numerous readers of the *Bee Journal*: and I hope I shall not be thought egotistical if I place them before you and them in a form as condensed as possible.

I began bee-keeping—two years since next May—with a Woodbury hive, a Neighbour's hive, and one of Mr.

Lee's Crystal Palace prize hives of 1874. The summer of 1875, as all bee-keepers know, was a bad one for bees, and they did no more than fill their hives with comb, and had to be liberally supplied with syrup in the autumn. I also added to my stock four other Woodbury hives, filled with bees rescued from the sulphur pit, and furnished with two or more combs in the frames taken from my other Woodbury hive; these all wintered well, notwithstanding that I put all the hives into a large glass frame in which I grow tricolor geraniums in the spring and summer. A great number of bees were tempted out on fine days, and not finding their way back into the hives before the sun was setting they perished of cold, and the bottom of the hive became strewed with dead bees, much to my sorrow; consequently I came to the conclusion that I had not acted wisely; I have not repeated the experiment, or put the hives into my cellar during the present winter. When I had replaced the hives on their old standing ground, I was looking over them one day in April, when I found two of the hives with apparently only lifeless bees in. I very thoughtlessly threw the bees all out; my man-servant picked up the two queens and took them into the saddle-room, and laid them in the window-seat. Next morning he came running to me to say that the queens were both creeping about; of course I put them back to the hives, and it being a sunny, warm day, some of the bees which had been thrown out, and most of those which remained in the hives, revived; but, unfortunately, I had no means of telling which queen belonged to each hive, and one was stung to death, and I think the other perished of hunger, for I lost both—a very practical lesson, and laid duly to heart, for the next hive which appeared dead I carried bodily into the saddle-room, made up a good fire, and covered the entrance of the hive with perforated zinc, and in the morning all was life and activity within the hive. All went well from that time, weak hives were strengthened with comb and brood from strong ones. I was aware of all that went on in all the hives but one, and that was Neighbour's, so I was determined to have them out. Accordingly I drove them, tied the combs into one of your hives of 1875, but had the mortification to find the queen drowned in honey at the bottom of the old hive; however the bees remained in the new hive over the night, and the next day I united another stock to it, and all again went well. I procured one of Walton's slingers, and intended to prevent swarming, but one hive would and did swarm, the other four did not; and from those four hives I extracted two hundredweight of honey in the course of the summer, that is before the end of July. Finding the inconvenience of having different-sized bar-frames, I had a lot of hives made similar to your prize hive of 1875, and transferred all the combs from the frames of the Woodbury hives into them, screwing the top bar of the former to the top bar of the latter, and apparently without annoying the bees much, for I was careful not to shake or jar them. Of course, I had to cut away the three other sides of the Woodbury bars, though that was not not a great price to pay for uniformity.

At various times in the summer and autumn I operated in all ways for many people in the neighbourhood; and I find many ladies eager to cultivate an interesting amusement, which may be made profitable, if sufficient time is devoted to it and the theory of the subject mastered. Before attempting the practice, I bought a swarm for 12*s.* on June 1st, hived it next morning at 5.30, putting it into one of your hives with six frames full of comb. Five weeks after the hive was full, and I slung 17 lbs. of honey out of it; in fourteen days from that time—about July 21st—I slung 18 more, so that swarm nearly paid for its hive, and its own cost also. Subsequently I had about 8 lbs. more from that same hive, so I think they do not show at all on the debtor side of my bee account. I built up one hive in the summer, by taking out frames to prevent swarming. Many people gave me their bees and combs after slinging their honey for them—and I bought some—who wished to diminish their stocks—and one little transaction of this kind is vividly impressed on my mind. I brought home a splendid skep, weighing 39 lbs., put it at the end of my row of hives, intending to drive and sling in the morning. The day was wet, and so were the following five or six. However, the first fine morning I had all ready, and my very able assistant and coadjutor, my man-servant, came an hour earlier to help. I raised the line, being prepared for a heavy lift, and it flew up like so much cork. There was one dead bee, but not one ounce of honey in it; it weighed 14 lbs., so that all that robbing had been quietly carried on on those wet days: and the besieged had made off with the besiegers. What became of the queen I do not know. We looked very foolish, and felt more so. However, I knew the honey could not have gone far, and I vowed vengeance; which I took by deliberately slinging every particle of honey out of every hive I had (six or seven then), about the 21st of August. All my later slingings were done with a large size of the 'Little Wonder,' an admirable little instrument, cheap, efficient, easy to use, easily cleaned, very portable, and cannot get out of order. I have a well at the bottom of mine to avoid frequent emptying.

Of course, after such robbing on my part, I had to begin to feed, and did so uninterruptedly until the end of October, giving ten hives about 18 lbs. of syrup each, at a cost of about $2\frac{3}{4}d.$ per lb.—they have all lived through the winter—with entrance for one bee at a time only, and three thicknesses of carpet for a quilt. Last Saturday I examined them all, and lest they should be getting short of provisions, I put two sticks of barley-sugar just between the bars, where there most bees in each hive.

Having seen it stated that bees could build comb of sugar syrup and water I determined to try it, and put a driven stock rescued from the sulphur pit into an empty Stewarton Hive with a glass back, that I might watch what went on. This was done quite late in the autumn, middle of October or thereabouts, and I have had the satisfaction to see the process accomplished. The combs are within $2\frac{1}{2}$ inches of the bottom of the bars. There are six of them, and apparently identically the same as any other combs. The bees are well and lively, and stored as much syrup as their combs would take. I have succeeding in uniting Ligurian queens to many stocks, and prefer Raynor's queen-cages, and to put 10 or 12 bees in with the queen, though I have succeeded by putting her in alone, but lost something like three out of five; with Raynor's cage I look upon it as a certainty, but under all circumstances the hive should be deprived of its queen for 24 hours before introducing the new one.

Being a medical man you will, perhaps, be eager to ask what I do if I am stung. Well, at first it used to make sad work with me, but I always wear a veil attached to the rim of an Indian hat which turns down at the brim, it keeps the veil a long way from the face (3 inches or more), and is not so hot and stuffy as if it were closer; good, thick leather gloves with gauntlets; but I have got so used to being stung that I really take no notice of it now, and it does not affect me much. I do not believe there is any antidote; if the poison is once injected it is absorbed into the blood, and its effects cannot altogether be prevented, though, probably, strong ammonia is the best application, and if applied at once will very materially mitigate the symptoms. The sting should always be extracted with a knife (taking care to avoid pressing the poison bag), pressing the edge of the knife upon the skin at an angle of 25 or 30° so as to *scrape* out the sting. I have occasionally been asked the question by ladies, who having been stung, not on the hands or face, and were in consequence unable to sit down comfortably, How are we to prevent the bees getting up our petticoats? and my plan is simply to sew the bottom of an ordinary one up, leaving sufficient holes for the feet to pass through,

and putting elastic round the holes to keep them close to the legs.

Now, Mr. Editor, if you have nothing better to fill your paper with for next month, and think it worth while, this rambling letter is at your service; and if you and your readers like they may have No. 2 after their next summer's experience. And allow me to add, in conclusion, that my apiary is open to the inspection of all comers if they give me a day's notice; and that I give instruction to the best of my ability on Mr. Punch's terms, 'free, gratis, for nothing to anxious inquirers and eager learners.'—JAS. IRVING, M.D., *Newark-on-Trent.*

THE WILD BEE.

I come at morn, when dewdrops bright
Are twinkling on the grasses.
And woo the balmy breeze in flight
That o'er the heather passes.

I swarm with many lithesome wings,
That join me through my ramble,
In seeking for the honeyed things
Of heath and hawthorn bramble.

And languidly amidst the sedge,
When noontide is most stilly,
I loll beside the water's edge,
And climb into the lily.

I fly throughout the clover crops
Before the evening closes,
Or swoon amidst the amber drops
That swell the pink moss-roses.

At times I take a longer route,
In cooling autumn weather,
And gently murmur round about
The purple-tinted heather.

To Poesy I am a friend;
I go with fancy linking;
And all my airy knowledge lend,
To aid him in his thinking.

Deem not these little eyes are dim
To every sense of duty;
We owe a certain debt to Him
Who clad this earth in beauty.

And, therefore, I am never sad,
A burden homeward bringing,
But help to make the summer glad
In my own way of singing.

When idlers seek my honeyed wine,
In wantonness to drink it,
I sparkle from the columbine,
Like some forbidden trinket;

But never sting a friend—not one—
It is a sweet delusion,
That I may look as children run,
And smile at their confusion.

If I were a man, with all his tact
And power of foreseeing,
I would not do a single act
To hurt a human being.

And thus my little life is fixed,
Till tranquilly it closes,
For wisely I have chosen 'twixt
The thorns and the wild roses.

Chambers's Journal.

Echoes from the Hives.

Okehampton.—'Please send me a dozen Leaflets. None wanted on Ligurianising. We are not arrived at that stage yet. All the bees that we don't ourselves save for the people are still burnt. The obstinacy is in exact proportion to the ignorance.'

Galton, Reigate, Feb. 12th, 1877.—'Many thanks for sending the Leaflets to my friend last month. They have made a convert of him already—at least, he says he will try to follow their instructions. My bees are well and healthy in Lanarkshire Hive, with slides removed and quilt over. All are breeding and taking in lentil-flour very eagerly. My plan of giving it is rather unique. I take the willow palms, and every morning plunge them into the flour, and then suspend them near the hive. Of course much is wasted; but they prefer it in that manner, perhaps because it is so nearly natural.'

Bell Field Villa, Kingsbridge, South Devon, Feb. 7th, 1877.—'In the *Bee Journal* for February you advise not to continue feeding; but I am experimenting on two out my ten strong stocks with continuous feeding, as they carry in a good deal of pollen from the dandelion, which is much in flower, owing to the unusual mildness of the season. I have a hedgerow of ribes (gooseberries) which will soon be in flower. I thought when I purchased your boxes in 1875—being larger sizes than I had been used to—they would not swarm; so I put a swarm in them; and the heaviest box that I have (and they are all heavy) is the box of yours that I put a swarm of 1875 in. It swarmed last year on the 31st of May and the 14th of June, gave me two glasses of honey, and the 14th of June swarm swarmed again on the 14th of July; so that was all from one swarm placed in your hive, which I thought I could, by giving room, prevent from swarming. Nevertheless, I have kept bees for thirty-five years, and mostly used Dr. Bevan's boxes and straw hives; but I prefer your Cottage Bar and Frame Hive. The last year was very encouraging: I hope it will be the means of giving an impetus to your new undertaking. The less we read about a 'Lanarkshire Bee-keeper' and Mr. Pettigrew the better.—J. E. A.

Queries and Replies.

QUERY No. 196.—I have been for some time intending to write and ask your advice with regard to a bee matter in which I am interested. A friend of mine who lives in Calcutta was home for a short time at the end of last year, and as I spoke to him a good deal about bees, and showed him my apiary, he became very interested in the matter and expressed a strong wish to try and domesticate one of the many species from which the natives get wild honey. He says there are many different kinds, but there are two sorts much commoner than the others. One very large and apparently resembling hornets; the other small, somewhat like our blue-bottle flies. From this last he thinks the honey is derived, and he wishes very much to try and get a stock of this latter sort domesticated. I rather fear that you said in an ancient copy of the *Bee Journal* that you were not acquainted with Indian apiculture (we can hardly call it such, since, I fear, it does not exist). Could *you,* or any of your readers, however, give me any advice as to the way in which he had better set about his undertaking? If you thought it would be any good publishing the main points in this letter, would you kindly do so in the next number of the *Bee Journal?* If, however, *you* could give me any help, I should much prefer some of your always sound advice as to commencing hiving, &c., and if possible, with regard to the nature of the animals. I will here

say that what I especially fear in this project is the great number of *sugar* manufactories in the neighbourhood. I may mention that my friend knows nothing of apiculture, but I am sure he will carefully follow any directions that are given him.—A. G. R.

Reply to Query No. 196.—We should first ascertain the habits of the various kinds of bees, and if they increase by swarming, or, like wasps, produce a multiplicity of queens in autumn, which after lying dormant during winter, go whither they will and form nests. We do not think that bees that do not swarm can be domesticated, and some that do are better let alone. The Nile bees, for instance, if disturbed attack the boatmen and follow them for miles, stinging most viciously. Perhaps some one acquainted with Indian bees will kindly enlighten our correspondent.—Ed.

Query No. 197.—Age of Combs.—1. I have four stocks of bees in straw hives; the combs will be six years old next summer, and the hives are very much decayed. They all swarmed last summer, so they will have young queens. Now, what will be the most profitable mode of dealing with them next summer, after they have swarmed again? Would the old combs be of any value to transfer them to frame hives? How many years will a comb last before it becomes unserviceable for breeding purposes?

2. Bee-Quieter.—I am always very timorous about meddling with combs with the bees on them. I remember reading in your *Journal* something in reference to a 'Bee-quieter.' What sort of thing is it; will you kindly describe it?

3. Honey-Strainer.—I have found a difficulty in getting my honey well strained and clear of scum, please to inform me as to the best mode of straining after it is run from the extractor.—J. F., *Messingham.*

Reply to Query No. 197.—1. We can see no reason why the combs of hives that are good enough to yield swarms in May should be discarded in June as worthless. We would transfer them 21 days after swarming, fixing them in frames and placing them in the hives intermediately with empty frames. Combs last perfectly sound and useful for ten years, and then may be renewed by shaving off the cells to about half their depth, when the bees will clear out the silken skins left by the hatching bees, and build anew.

2. A Bee-quieter is a means by which smoke (of almost any kind) may be injected into a hive, or amongst a cluster of bees. An ordinary pipe will answer the purpose if, after it is well lighted, you reverse it and blow through the bowl. To facilitate that kind of thing we have arranged a double briar-root pipe, *see* page 216, vol. II., which may be had post free 1*s.* 6*d.*

3. Your honey should, after straining into a jar or can, be set in a vessel of hot water and skimmed. It, however, when extracted, seldom requires more than straining through flannel that has been well boiled and shrunk. —Ed.

Query No. 198.—What is the best time for transferring bees, &c., from straw skep into frame hive? A swarm in a frame hive have built across the frames binding them all together. What had I better do?—Rev. G. C. B. Madden, *Armitage Bridge Vicarage, Huddersfield.*

Reply to Query No. 198.—Straightening Combs. —The best plan will be to let the bees swarm, and twenty-one days after lift all the combs out *en masse* and set them on a table, putting the hive back in its place. Then with a knife cut out each comb (there will be no brood to damage), brush the bees from it into the hive, and proceed as advised in the 'Leaflet on Transferring.'

Query No. 199.—Now that the swarming season is approaching, ought there not to be an understanding between buyers and sellers as to what is meant by a *swarm.* Do you not agree with me that bees should be sold by weight, say 5*s.* per lb.? to which should be added the highest price at that season for the Ligurian queen, at its head, if such there be.—W. Raitt, *Dundee.*

Reply to Query No. 199.—We quite agree that selling swarms by weight would be the fairest mode of dealing; but simply adding the selling price of a Ligurian queen when present is not a fair compensation for the risk and labour attending her introduction: her value when enthroned is at least double her cost.—Ed.

Query No. 200.—At our last show I noticed straw tops for frame hives in lieu of quilt. I should like to know the opinion of the Captain at the Helm. Perhaps an answer in our next *Journal* would interest others as well as myself. It is all a job to get quilt enough for all hives.—P. Skinner, *Swanley.*

Reply to Query No. 200.—Straw crowns to frame-hives cause much propolisation, for not being smooth the bees insist on filling up between the straws. They do not lie flat and close on the frames, and consequently get fastened down; then the wrench to get them off causes undue disturbance of the bees.

If ever the hives under them become foul-broody, they (the tops) are afterwards useless, as they cannot well be cleansed. There is no known crown cover equal to the quilt, and it is much less costly than straw crown-boards (?), and can readily be cleansed. Try the ticking and house flannel.—Ed.

Query No. 201.—Will you please to inform me, in the next *Journal,* the best way that I can keep bees on the hills, a mile from any house, so that they cannot be made mischief with nor get stolen?—R. D.

Reply to Query No. 201.—It is not an easy matter to prevent the damaging or stealing of bee-hives when placed in unprotected places. One method is to hide them amongst the heather, or furze, some distance from the usual track of pedestrians, and we can suggest no other; but would it not be safer and better to place them in the care of the nearest cottager, and let them fly the mile for their supplies? It is no use to make strong boxes with locks; the bees must have a means of access, and mischief would find it out.—Ed.

Query No. 202.—Comb Foundation.—In reading over Mr. Cheshire's advice on making moulds for wax-sheets for drone comb-foundations for supers, I find that he says, when giving directions about the 'shot and paraffin dodge,' 'Every practised bee-keeper will know why it is better to make a mould thus than to employ natural drone-comb as a model,' or words to that effect. Will you kindly explain this? I cannot see why a model from nature should not be the best to be obtained.

Reply to Query No. 202.—We cannot tell Mr. Cheshire's meaning, but quite agree that a model from nature must be the best.

NOTICES TO CORRESPONDENTS & INQUIRERS.

Evans's Poem.—The republication of this delightful work, in separate form, is under consideration. Meantime any hints as to size, form, and price, will be acceptable.

British Bee-keepers' Association.—Although the *fons et origo* of the Association, our connexion with it has now ceased. We resigned our seat on the Committee with many regrets.

G. H.—Mr. W. T. Braddy, whose honey 'came to grief' in its transit on the Great Eastern Railway from Kelvedon to the Alexandra Palace Show, has received as compensation from the Company 5*l.* 5*s.*

Mr. Rogers, 16A *Cook's Road, Kennington,* wishes others in the neighbourhood of the Park to help him in sowing bee-seeds.

KING'S LANGLEY.—Kindly refer to reply to query on 'Straightening Combs' on page 212.

STANDARD FRAME.—We are not responsible for any so-called 'Standard Hive' save our own.

GUIDE-COMBS.—Will 'Lanarkshire Beekeeper' be so kind as to inform me how he makes and fixes his guide-combs, or rather sheets, as I am going to use the Standard Hive as described by the Editor in January *Journal;* and if he thinks it dangerous to make them reach nearly to the bottom of the frame (as they are so long); and if so, could I put a strip of wood down the middle as a support?—W. H. J.

W. H. J.—NUCLEUS HIVES.—Nucleus hives should be of a size to contain four frames, leaving a quarter of an inch space underneath and at both ends of the frames. The four nucleus frames should be of a size to fit into an ordinary Woodbury or other frame, or should be fixed under a top bar, so as altogether to occupy the place of a frame in a stock hive when occasion requires. There need be no particular nicety in the make of what is only intended for a temporary purpose. The frames may be tied to the bar with fine wire, or tacked on with perforated zinc slips.

W. H. J.—ARTIFICIAL SWARMING.—The plan quoted by you from 'Langstroth's' book is an excellent one; but which to advise you to adopt is a difficult matter, seeing you do not give us an idea of the number of stocks in your apiary. If you have only one stock of bees, and wish to make an artificial swarm from it, and cannot get a queen or queen-cell to give to it after the swarm has been taken away, the bees will have to raise a queen for themselves, which will occupy from ten to sixteen days—a loss of time in the busy season always to be deplored; but if you intend to artificially swarm, say, ten stocks, it will be a good plan, when drones are in season, to make one swarm early by taking all the bees from one of your strongest stocks. You should now place the hive of brood and combs on the stand of another strong stock; then take the queen from your choicest colony, and (with due precautions) unite her to the queenless stock from which the swarm was taken. You will then have one new swarm, two stocks only slightly weakened, and one full stock raising queen-cells from brood of your most approved queen, and seven or eight days after you may make as many artificial swarms as the strength of your colonies will warrant, and will have as many queen-cells as you require with the advantage of their having been raised in a full colony.

G. GREEN.—CLIPPING QUEEN'S WINGS.—The object is to prevent swarms flying away; but it is not applicable to second or after swarms; for if the young queen's wings be clipped impregnation will be prevented, and the swarms will be rendered useless. You can never be *sure* of the fertility of a young queen until her brood is sealed over and its sex determined; but it may be '*taken for granted*' when ovipositing has commenced. Young queens are not fertilised before leaving the hives with casts. Read our 'Mysteries of the Bee-hive' in the No. for July last.

CONTROLLING FERTILISATION.—There is no method known for controlling the fertilisation of queens by selected drones. The positive absence of undesirable drones is the only way of preventing undesirable marriages.

THE EXHIBITION TENT.—We shall be glad to know at the earliest what Associations, clubs, or individuals will require the use of the Tent this year. Instead of twenty feet of frontage for observers, the width will be thirty feet. WE are anxious to take time by the forelock, and be ready; but we cannot divine the wishes of others. Secretaries of Associations requiring our assistance must please communicate early to prevent clashing. The *terms* were published pp. 153 and 154.

OUR WANT AND SALE COLUMN.

WANTS may be advertised at 2*d.* per line of eight words, for one insertion, renewable in succeeding months, for 3 months, without alteration, for half price. Replies must contain stamped directed envelope, or they will not be forwarded.

Should no sale take place, the money deposited will be returned to the depositor, less a uniform charge of fourpence to cover postage.

No advertisement must contain more than sixteen words. P. O. Orders to be made payable to C. N. ABBOTT, office of *British Bee Journal*, Fairlawn, Southall, near London.

No.

382 'The Best Management of Bees,' fully illustrated, by Samuel Bagster; also 'Practical Bee-keeping.' The two books delivered free only 4*s.*

383 'Practical Directions for the Management of Bees, to their greatest advantage, by that able author John Keys;' also 'Bees, their Habits and Treatment.' The two books cheap at 4*s.* 6*d.*

384 25 lbs. of best Super Honey in frames, also best extracted Honey in 7 lb. jars. Offers wanted.

385 Good healthy Stock of Bees, 12*s.* 6*d.*

386 Three Improved Cottage Woodbury Hives, price 17*s.* each. Well painted.

387 Honey for Sale.— 130 lbs. of Pure drained Honey, at 1*s.* per lb.

388 Pure Virgin Honey-comb, in wooden and glass supers, from 5 to 30 lbs. weight. Price according to quality. S. F. Clutten, Whittingham Hall, Fressingfield, Harleston, Norfolk.

390 Offers requested for Honey, and Heather Honey-comb. Durham.

391 For Sale.—A beautiful glass Super of finest Honey-comb, weight 7½ lbs. 11*s.* Hampshire.

393 For Sale.—A quantity of Phacelia, Borage and Melilot Seed, in 6*d.* and 1*s.* Packets, 1*d.* extra for postage. Also a lot of strong Plants of Melilot, 1*s.* per dozen to any address, free to nearest railway station from vendor.

394 For Sale.—Forty Vols. of the Naturalist's Library, First Edition, in good order and original boards (covers). Price 10*l.* 10*s.*

395 The Alsace Bee-Keeper for 1876 (Der Elsassische Bienen-Züchter), clean and uncut, price 5*s.* each.

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397 Wanted.—Vol. II. of *British Bee Journal*, bound or unbound. Apply to Editor.

398 Wanted.—Vol. I. of *British Bee Journal*, state price to E. S. Kent, Stratford Tony, Salisbury.

400 Sherrington Honey Slinger, 1*l.*

401 Wax Sheet, plain, per lb. 4*s.*

402 *British Bee Journal*, good order, unbound, 5*s.*

403 *British Bee Journal* from September 1874, to December 1876, unbound, 12*s.*

404 Nos. 2, 3, 4, 8, of Vol. I., very scarce and highly instructive, each 1*s.*

405 Wanted.—Twenty to Thirty Stocks of Bees in Skeps. Weight no object if plenty of Bees. A fair price will be given, and risk of packing undertaken.

406 Wanted.—Stocks of Black Bees in Straw Skeps; also to bespeak Swarms. Electro-plate at Manufacturer's prices offered in exchange.

407 'The Bee-keeper's' Receipt Book, post free, one copy 6½*d.*; per dozen, 3*s.* 2*d.* S. F. Clutten, Fressingfield, Harleston, Norfolk.

408 Wanted.—No. 5. Vol I. and Index, and Vol. III. and Index, *British Bee Journal*. Good price for the above may be given.

409 For Sale.—Vol. I. *British Bee Journal*, worth its weight in gold, 25*s.*

410 Vol. II. *British Bee Journal*, very scarce, 21*s.*

411 Abbott's 15*s.* Little Wonder, good as new, but not large enough, 12*s.*

412 For Sale.—Improved Pagden Hives (new), Straw Supers, Bell Glasses, Woodbury Hives (used one season), Feeders, &c. All equal to new.

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Arrangements have been made by which the undermentioned valuable Bee papers may be ordered through the office of the *British Bee Journal*, and the trouble of obtaining Foreign Post-Office Orders prevented.

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THE

British Bee Journal,

AND BEE-KEEPER'S ADVISER.

[No. 48. Vol. IV.] APRIL, 1877. [Published Monthly.]

Editorial, Notices, &c.

APRIL.

April should be a busy month of preparation, and bee-keepers will be wise if they take time by the forelock and make ready for the coming campaign. The first necessary to success is the early breeding of bees, and stocks should be stimulated to induce them to increase, with as little labour on their part as is possible. On fine mild days it is natural for them to seek for provision from such sources as may be open to them, and as in their search many (being aged and worn) will succumb to the influences of cold it will be well to take care that the object of their search may be found near home and in places sheltered from cold and piercing winds. Syrup should be given by slow degrees, continuously, by the bottle and feeding-stage to all stocks that are not thoroughly well supplied with stores within their hives, and artificial pollen should be offered *ad libitum* in every sheltered corner. Stocks that are heavy with honey should have a portion of it unsealed as often as convenient each day, not that the bees may be simply saved the trouble of unsealing it, but because they cannot resist the temptation to remove it to other quarters; treating it, in fact, as if it were newly-found treasure, and becoming as excited over it as if they had never seen it before. It would be well that the unsealing should be commenced as near to the brood-nest as possible, that the circumjacent cells may be emptied and room given for increased oviposition by the queen. To such stocks the giving of syrup would be an evil, as the bees would encumber the cells with it and prevent the possibility of the increase so much to be desired; and it will be found sufficiently stimulative to unseal their cells, and keep up an outside supply of pea-flour, or some other substitute for natural pollen.

The spring stimulation of colonies is as important to the profitable management of an apiary as the timely sowing of seeds is to the florist and gardener; it is the means to the end, and unless adopted the whole year's work will be late and, by comparison, profitless. There will, as a matter of course, be some whose bees will receive no such attention as we are suggesting, who hereafter will tell of wonderful results from colonies which have been left to their own resources, but such bee-keepers (?) will not tell of the losses their apiaries have sustained, nor of the fighting and robbery which have occurred, nor the natural unions which have taken place between the assailed and the assailants, or of the former's utter destruction by their stronger opponents.

The Preparation of Hives is of great importance, and every bee-keeper should lay in a stock ready for emergencies. It should be remembered that, in all cases where hives or supers were awarded prizes at the late Alexandra Palace Show, it was on the distinct understanding that they should be supplied to the public at the prices affixed to them, and that both should be properly fitted with wax-guides and the frames with efficient distance-keepers.

This will be an important aid to purchasers of new bee-furniture and to cottagers, and amateurs who have not the conveniences for making them, the guides, &c., will be a great boon.

Wax-Guides must, in some form or other, be fixed to all frames and supers, where straight combs are required. A thin straight line is all that is necessary, and if the frames be so placed that these lines shall be from $1\frac{9}{20}$ths ins. to $1\frac{1}{2}$ inches apart, the bees will adopt them as the foundations of their combs and will build along them. Strips of wax-sheet are readily made; we use an old coffeepot, partly filled with water, on which, when boiling, the wax will float, a dipper of wood, made wet and cold by the aid of a wet sponge, is then smartly plunged in and out again, when the wax-strips will be found adhering.

The dipper may be a polygon of many sides, or may be perfectly cylindrical, in which latter case a knife will have to be used to cut down one side of the wax-tube that will be formed round the dipper, and which, when opened, will form a wide sheet of about three times the diameter of the cylinder. These sheets may then be impressed and cut into strips, or used plain, according to fancy. We are always content with the latter, and do not use them of more than half-an-inch in width.

MR. PETTIGREW'S CHALLENGE IN *THE JOURNAL OF HORTICULTURE.*

Replying to a valued correspondent we beg to say that we *have* observed it, but did not intend to *notice* it, on the ground of its absurdity. If Mr. Pettigrew wants to try the merits of Ligurian *versus* black bees, why does he not do so 'on his own hook,' and settle the point, —at least, to his own satisfaction? He could then talk and write from experience. If he used similar skeps, and equal swarms of black and Ligurian bees, he could easily try which would attain the greater weight in a given time; and he could take care that no one interfered with either, and the test of (say) six of each kind, would doubtless be interesting. But Mr. Pettigrew has a deeper design than the mere test as to which can collect the most honey on *the let-alone principle*, such as is implied in the terms of the challenge; he would involve in that same principle (a principle by the way that we, with hundreds of others, are steadily uprooting) the hives that are used as the means of *cultivating* the bee, and turning its products to the best account. He invites the votaries of all the best hives to enter into a competition with them against his skeps and some 2*d.* grocers' boxes, with the stipulation first made that they are to be set in a yard or garden, well stocked, and left to take their chance, and swarms may depart and are to count *nil* on either side; in fact, the 'let-alone principle' is to be strictly carried out, and the result he would consider a fair trial. The whole thing is an absurdity. Does he remember when the Prussian needle-gun was put on its trial against the muzzle-loaders of Austria? Perhaps he does; and in dread of the immense superiority of the moveable comb principle, a very 'breech-loading mitrailleuse,' in comparison with which in able hands, the skep, with the principles of 'fixism' and 'letting alone' attached thereto, is but an 'old brown Bess;' he stipulates that all the advantages claimed for the former, although he strenuously denies their existence, shall be thrown away, and that his adversaries shall meet him without them, shot for shot only. The Austrians made no such stipulations in engaging with their adversaries, though they, like Mr. Pettigrew, denied the advantages, but at the first fire not only they but the whole world learnt a lesson which they have not been slow to profit by, and breech-loaders are now the order of the day.

And the moveable comb principle would be the order of the day if the wily champion of fixism dared to pit his system fairly against it; but no, he knows better, and as long as he is allowed to remain 'on the paddle-box' of the *Journal of Horticulture* the truth will not be told, for he will not meet his opponents in fair fight, nor admit the evidence of those who have over and over again fought 'the battle of the hives,' to the utter discomfiture of 'fixism.' Some years ago WE challenged him to a public trial of hives and bees—no feeding was to be allowed, but each was to manage his bees to the best of his ability under proper and strict supervision—but he would not come to the scratch, because we relied on our system of '*management*,' while he wanted the bees to be left to their own devices, with no management at all.

We have never pretended that a swarm of bees put into a commodious skep, or common box, will not attain as great weight in its first year as if put into one of the most expensive bee-palaces known, if they are to be *let alone;* but we do say most conscientiously that, with proper management, husbanding the heat and causing the new combs to be built in the hives' centre, preventing the production of useless drones, by the judicious use of the extractor, by the prevention of swarming (which cannot be controlled in the skep), and by the adoption of numerous other measures implied in the word management, we can secure more honey in better form, for sale, both as honey in comb and honey in jars, purer and cleaner, from a bar-frame hive than can possibly be obtained from a skep; we can, moreover, if increase of stocks be the object, beat the skep by two to one; and if queen-raising be the pastime we fearlessly say that the straw skep 'isn't in it.' If Mr. Pettigrew denies this let us fight the matter out, at once. There is plenty of time *this year* to arrange the trial; we will put six swarms and twelve stocks into bar-frame hives, he shall use his beloved skep with swarms, and stocks of equal weight, and then we will see which hive and system produce the best results by the end of the year. We invite him to 'come if he dare;' he has no faith in our 'mitrailleuse;' but never mind that. If he has the faith in his 'old brown Bess' that he pretends, let him put it to the test; or, in the name of all that's honest, let him hold his peace on the subject. The principle of our proposal is to see which swarms will yield most honey in the first year; six of the stocks shall be used for a like purpose, and the other six shall be tested as to their general power of increase. He, to use his weapons to the best of his ability, and from his great age and experience, he must admit he there has an advantage; we, to do the best we can with our 'new-fangled notions' and our so-called 'traps for the unwary:' we say, finally, Come if you dare!—ED. *B. B. J.*

BEE FLOWERS.

Now is the time to sow all the seeds, in the flowers of which the bees delight. Phacelia sown now, or towards the end of this month, will come into flower during the interval between fruit blossoms and the lime and white clover, and where a few rods of ground can be devoted to that purpose the bees will be greatly benefited. Melilot clover is a grand plant for bees, but is of little use for any other purpose when left to that end. Mustard is excellent, and being very prolific of seed ought to pay well for cultivation. Rape is in the same category.

We are about to try the Chinese oil-radish, of which so good an account has been given. Corn-bottle is an admirable bee-flower; it is usually called corn-flower, and a big patch cannot be out of place in an apiary, and is very pretty for 'nosegays,' a word now rendered 'bouquets.' Mignonette is a general favourite, and a pinch of seed should be scratched into every vacancy in the garden. Wallflowers are indispensable, and are greatly favoured by the bees; they are also very fond of visiting nasturtiums; and the large single poppy may often be found to contain eight or ten bees in a single blossom, though many believe that stocks are injured by ingathering from them. Borage is, of course, indispensable, flowering freely for the greater part of the year, and yielding abundance of delicious honey.

There are many others, all useful; but for a small collection we would advise, as annuals, Borage, Phacelia, Mignonette, Alyssum, and Cornflower; and for biennials, Melilot Clover and Wallflower.

Garden Edging.—Sweet Alyssum is a hardy annual, of which bees are very fond. It is a beautiful little plant, producing an abundance of sweet-scented white flowers suitable for edgings, the margin of beds, and the outside rows in ribboning. Should be sown in the open ground in March or April, or in a nursery-bed in September, if wanted to flower very early. Light, sandy soil is the most suitable for this plant. It grows about six inches in height, and blooms from January to September.

OUR WANT AND SALE COLUMN.

In our last we hinted at a change to be made in the mode of conducting this useful department of our *Journal*, a change rendered imperative by the increasing demands on our time causing a continuation of the labour involved in it impossible. The column will in future be open to subscribers (the same being non-traders in bee furniture), who may make their wants and wishes, as regards sales, purchases, or exchanges, known to the world, for the sum of one penny for every six words, or part of six words to be printed. They may identify themselves by a *nom de plume*, which we will register, and we will address and forward every stamped letter sent under cover; but those who choose may publish their addresses in the ordinary way.

The charge will be the same for each insertion, and stamps *must* be sent with each advertisement, or for renewals, not later than the 24th of each month, or they will not be inserted.—Ed. *B. B. J.*

A LECTURE ON BEE-KEEPING.

A lecture on bees and bee-keeping was delivered at Montacute, Somerset, on the evening of Monday, March 19th, by Mr. C. Tite, of Yeovil. The Rev. H. Hardin presided, and there was a good attendance. The syllabus was as follows:—'Natural history one of the most interesting of studies; bee-keeping ancient and modern; natural history and physiology of the bee; description of the queen, drone, and worker, showing the points in which they differ, and the life-work of each; the formation of wax and wonderful structure of comb; various kinds of hives; advantages of the bar-frame; use of the honey-extractor; pleasures and profits of bee-keeping; condemnation of the smotheration system; appeal for humanity to the bee.' Through the kindness of Mr. Cowan, of Horsham, Mr. Carr, Newton Heath, and Mr. Poole, Uphill, the lecturer was able to illustrate his remarks by means of several sets of splendid diagrams, and by a most interesting little 'bee-keeper's museum.' He also exhibited some model hives and honey extractor, and specimens of run and extracted honey. During the evening the members of the Tonic Sol-fa Class sang several appropriate pieces, such as 'Sweet Honey-sucking Bees,' 'The Approach of Spring,' 'Where the Bee Sucks,' and 'The Song of the Bees.'

SONG OF THE BEES.

We watch for the light of the morning to break,
And colour the eastern sky
With its blended hues of saffron and lake;
Then say to each other, 'Awake! awake!
For our winter's honey is all to make,
And our bread for a long supply.'

And off we fly to the hill and dell,
To the field, to the meadow and bower,
To dip in the lily with snow-white bell,
To search for the balm in the fragrant cell
Of the mint and rosemary flower.

While each, on the good of her sister bent,
Is busy, and cares for all,
We hope for an evening of heart's content
In the winter of life, without lament
That summer is gone, or its hours misspent,
And the harvest is past recall.

BRITISH BEEKEEPERS' ASSOCIATION.

A Committee Meeting was held at No. 15 Beaufort Buildings, Strand, W.C., on 9th March last.

Present.—Mr. Hooker (in the chair), and Messrs. Cheshire, Glennie, Henderson, Hunter, Jackson, Minson, and Neighbour.

The Balance Sheet at 31st December, 1876, audited by Mr. W. A. Kirchner, was received and adopted, and a vote of thanks to the Auditor was carried unanimously.

The letter of the Caledonian Apiarian and Entomological Society, further consideration of which had been unavoidably postponed from the last meeting of the Committee, was then discussed, and it was resolved,—'That in lieu of a Metropolitan Show for 1877 the funds

and energies of the British Beekeepers' Association be devoted to promoting, assisting, and encouraging provincial shows.'

Resolved,—'That the Hon. Sec. be instructed to communicate, without delay, with the Secretary of the Caledonian Society, and to express to him the good feeling of this Association, and their willingness to assist them, and other provincial shows, with medals and money as far as their funds will allow, and inquire what means of management is suggested, and, also, the nature of the prize schedule, with any other information he can give for the guidance of this Committee.'

A letter from Mr. C. N. Abbott was read, tendering his resignation of his seat on the Committee; resolved,—'That the Committee acknowledge receipt of Mr. Abbott's letter with regret.'

CALEDONIAN APIARIAN AND ENTOMOLOGICAL SOCIETY.

Third Session.

The first meeting of the Session took place in McInnes Hotel, Hutcheson Street, Glasgow, on Wednesday, 21st March, at 2 p.m.: present, Messrs. Sword, Alexander, Muir, Lachlan, Towers, Bennett, James, and John Wilkie.

Mr. Sword was called to the Chair. The minutes of last meeting were read and approved of. Letters from Messrs. Raitt, Fox Kenworthy, Godfrey, and other Secretaries, anent ours of 20th Nov., asking them to join with the Caledonians in a Grand Show at Carlisle were read; but, while they wished us every success in such a Show, they found it was too far for them to join us, however willing they might be to aid us with money or prizes. Important matters were brought before the meeting, which, on the motion of Mr. Wilkie, was adjourned for a month. A full report will then be published.

EAST OF SCOTLAND BEE-KEEPERS' SOCIETY.

This Society was formed at Dundee in January 1876. During the year 109 members have enrolled themselves, in addition to the members of a flourishing branch recently formed at Blairgowrie, under the presidency of James Luke, Esq., of Marfield.

The year's operations included three general meetings for the exchange of information; the circulation of printed and manuscript papers; local meetings addressed at Arbroath, Inchture, Longforgan, and Blairgowrie; open demonstrations in practical bee-keeping at Duntrune, Castle Huntly, Inchmarlo, Coupar Angus, and other places; a large amount of correspondence with inquiring members; the providing of facilities for obtaining hives, &c.; the importation of a number of Ligurian queens; and the holding of an International Honey Show at Dundee, in September, which was visited by 32,000 persons, and was of great value as an education in the art of improved bee-keeping.

The general results of these operations have been—a decided revival in the art of bee-keeping in the East of Scotland; the general introduction of bar-frame hives, and humane and profitable methods; and very considerable cash return to those cottagers and others who most readily adopted those methods.

It has been decided to hold a second Exhibition in conjunction with that of the Dundee Horticultural Society at Dundee this year, and the Committee are anxious to get honey exhibits introduced into all Horticultural Shows in the district. They trust patrons and members will advocate the matter in their various districts.

The Committee are glad to be able to report a balance of cash on hand, after paying all expenses, of 9*l.* 16*s.* 11*d.* They have, in dependence on the liberality of former subscribers, and the expectation of increased support, prepared a schedule, offering prizes to the amount of nearly 45*l.* As the ordinary operations of the Society involve a considerable expenditure in addition to this, it is hoped that donations for the year will be both prompt and liberal.

Present members, and parties desirous of joining, are reminded that the annual subscription of 2*s.* 6*d.* is now due, and payable before the 1st May. The treasurer—Mr. J. D. Ker, Douglasfield, by Dundee—will issue members' cards for 1877, on receipt of the above amount.

This Society will hold its second exhibition of bees, honey, hives, &c., in conjunction with the Dundee Horticultural Society's Exhibition, to be held at Dundee, on 30th and 31st August and 1st September, 1877.

SCHEDULE OF PRIZES—OPEN TO ALL.

Class A.—Honey and Wax.

No.		1st	2nd	3rd
1.	Largest and best harvest of super honey, the produce of one hive	40/	30/	20/
2.	Largest and best harvest of super honey, the produce of one hive, in cases not over 5 lbs. each, nett	40/	30/	20/
3.	Best single super in wood, or wood and glass, over 20 lbs.	30/	20/	10/
4.	Ditto, ditto, 10 to 20 lbs.	20/	10/	5/
5.	Ditto, ditto, under 10 lbs.	15/	10/	5/
6.	Best sectional super, over 20 lbs., combs separable and not over 4 lbs. each ...	20/	10/	5/
7.	Best super in straw, over 10 lbs. ...	20/	10/	5/
8.	Ditto, under 10 lbs. ...	15/	10/	5/
9.	Best super of heather honey, over 10 lbs.	20/	10/	5/
10.	Ditto, under 10 lbs.	15/	10/	5/
11.	Finest super, not over 7 lbs.—Special prize offered by Messrs. Scrymgeour and Sons, Dundee	21/		
12.	Prettiest design in honey-comb worked by the bees, not over 5 lbs.—Special prize offered by E. Bailey, Fruiterer, Dundee	10/6		
13.	Run or extracted honey, 6 lbs. in show glass	15/	10/	5/
14.	Ditto, 6 lbs. heather honey, in show glass	15/	10/	5/
15.	Ditto, 1 lb. each of fruit blossom, clover, and heather honey, in separate glasses	10/	7/6	5/
16.	Two lbs. wax	7/6	5/	2/6
17.	Six sheets impressed wax foundations	10/	5/	

Class B.—Hives, &c.

1.	Bar-frame hive complete with floor-board, super, and roof; price not over 20s.	20/	10/	
2.	Cheapest bar-frame hive, suitable for cottagers, with floor-board and roof	15/	10/	
3.	Best hive on the storifying principle; price not over 20s.	20/	10/	
4.	Best straw skep and super	10/	5/	
5.	Best honey extractor, combining cheapness with general efficiency... ...	20/	10/	
	Note.—Exhibitors in Nos. 1 to 5 must undertake to supply any number of similar articles at the prices affixed to their exhibits.			
6.	Best form of super for general use in an apiary; must be cheap, workable, and saleable	10/	5/	
7.	Best and neatest observatory or uni-comb hive stocked with bees ...	40/	30/	20/
8.	Most beautiful Ligurian bees, with their queen, in glass hive	20/	15/	10/
	The bees in No. 7 may be entered in No. 8.			

All honey, unless entered for exhibition only, must be the *bonâ fide* produce of the exhibitor's own apiary, gathered in the natural way, during 1877.

For forms of entry and special rules for this department, apply, after 1st May, to the Secretary,

Mr. Wm. Raitt, *Liff, by Dundee.*

STAFFORDSHIRE BEE-KEEPERS' ASSOCIATION.

The spring meeting of the Association will be held at Molineux House, Wolverhampton, on Wednesday, April 11th, at 12 noon, for general business, and to arrange for the coming season. The chair will be taken by J. E. Briscoe, Esq., President. Bee-keepers in Staffordshire and neighbouring counties are invited to attend.—WILLIAM J. FRERE, *Hon. Sec.*

DORSET BEE-KEEPERS' ASSOCIATION.

The Committee of the above-named Association met at Shaftesbury on March 13th, when the programme for the coming summer was discussed. It was resolved to endeavour to arrange for holding Bee and Honey Shows at Sherborne and Dorchester in August, in connexion with the local Horticultural Societies. Members also promised to contribute collections of honey, supers, model hives, &c., to various village Flower Shows, and to attend them in order to explain the advantages of the improved system of bee-culture. An address, on the Anatomy and Physiology of the Bee, was delivered by Mr. C. Tite of Yeovil, who exhibited some splendid plates lent by Mr. T. W. Cowan of Horsham, and Mr. O. Poole, Hon. Sec. of the West of England Apiarian Society, as well as a most interesting little museum and some excellent drawings lent by Mr. W. Carr of Manchester.

AN INTERESTING APIARY ACTION.

NEIGHBOUR AND OTHERS *v.* C. HOPE JOHNSTONE.

At the metropolitan county court of Bloomsbury on the 22nd of March, the plaintiffs, carrying on business at 127 High Holborn, sued the defendant to recover the sum of 3*l.* 2*s.* 10*d.* under the following circumstances. Messrs. Dod and Longstaffe, who appeared as solicitors for the plaintiff, stated his clients were large dealers in bees and bee-hives, and sell as many as 150 stocks and swarms annually; and in 1875 supplied the defendant with three swarms of bees, for which the defendant paid, and they were sent to the defendant's address at Lewisham. Subsequently, however, the defendant called and said that the bees had deserted their hives. In consequence of which the plaintiffs, wishing to meet the defendant in a fair way, offered to supply two other hives and charge him half price, as he had been disappointed with his former ones. These were carefully selected, when the defendant in August or September last called at the plaintiffs and complained that the bees were dying, and in consequence of which the plaintiff sent one of his assistants down to Lewisham to see what was the matter, who would when called give evidence on the subject. The defendant here objected to payment of the charge of 4*s.* for carriage. The learned judge interposed and told him to wait till his turn to speak came.

The plaintiff being called corroborated the opening of his solicitors, and in cross-examination by the defendant said the reason why he had not brought the action earlier was because he had expected a cheque long before this from the defendant; and in answer to the learned judge, said he had charged 4*s.* carriage on the second supply because he had only charged half price for the bees.

B. Stevens called stated he had been twenty years in the service of the plaintiffs, and put the bees into the hives. They were a healthy swarm, but would naturally require feeding in wet weather.

I. Greenhill, assistant to the plaintiff, said he took two swarms in July last to the defendants, but he refused to pay for them on the ground that they were sickly. They were in a healthy condition when sent; but he told the defendant they would require feeding, as it was late in the season; they would require about a pint of syrup a day.

In cross-examination, witness said he could not say whether the plaintiff sent any food with the bees or not, and did not recollect having any conversation about food with the defendant.

James H. Blackmore, the plaintiff's manager, said that in September, 1875, he went to see the bees at the defendant's place, and found them dwindling considerably; they had not been cared for or properly fed, and he told the defendant what to do with them.

By his Honour—Defendant never complained to the plaintiff, but had made some very unpleasant remarks.

In cross-examination—This was in September. He considered the bees had not sufficient shelter, and that it was usual to feed bees after that time.

This being the plaintiffs' case, the defendant on being sworn began to read a written statement which he had prepared of his case, when he was stopped by the Judge, who told him the law would not allow him to read a written defence.

Defendant—I was told by my solicitor I might do so.

The learned Judge—Then you were told wrongly.

Defendant—Very well then, all I can say, in the treatises I have read on bees I was never told to feed them, nor was I ever told so by the plaintiffs. The first intimation I had was from Blackmore, when I at once ordered food and feeders for them. I considered I had been imposed upon by the plaintiffs, and wished it to be arbitrated on, rather than brought into court, by Dr. Cumming or some other non-trading expert in bees.

The learned Judge here stopped the case by asking the defendant if he had any witnesses to call. The defendant having replied in the negative, the learned Judge told the defendant he must rule against him, *as it was evident to him that any one keeping bees should learn how to take care of them, which the defendant had not done.*

Judgment was therefore entered for the plaintiffs, with costs.

Correspondence.

*** *These columns are open to Subscribers, so that their queries, replies, correspondence, and experiences, may be* fully *and* faithfully *recorded; and for the discussion of all theories and systems in Bee-culture, and of the relative merits of all hives and appurtenances, that the truth regarding them may be ascertained. The Editor, therefore, must not be expected to coincide with all the views expressed by the various writers. All Correspondence is addressed to the Editor.*

ECHOES FROM GERMANY.

BY A COUNTRY DOCTOR.

Paper read at the Nineteenth Annual Meeting of German Bee-keepers, held at Halle in September, 1874, by Herr Hilbert.

'What advantages result from speculative feeding in the spring? Under what conditions is this most suitably carried on, and when ought it to be omitted? Failing honey and pollen, what substitutes are most suitable for this speculative feeding, and, more especially, what are calculated to influence in the most favourable manner the production of brood?'

Gentlemen,—The first part of the question runs, 'What advantages result from speculative feeding in the spring?' Every gentleman here probably well knows that even in good situations it is only the strong stocks that are of any use, and that from these alone any honey harvest can be

expected. In reference to this, it may be truly said, 'Money lost is little lost; time lost is everything lost.' This is strikingly the case in those localities where it is of the first importance to take as much advantage as possible of specific periods of abundant pasturage—as, for instance, during the blooming of our oil-yielding plants, and when long stretches of meadow-land or the corn-cockle, &c. are at their best; because, in the absence of other summer or autumn pasturage of any value, these probably constitute the sole sources whence our bees can derive a surplus. If, then, from early spring onwards such a flowery pasturage as is necessary for their successful development is not obtainable by the bees, either on account of the unfavourable nature of the situation or the conditions of the weather, the rational bee-keeper will unremittingly use means for giving them assistance, so that at the time of the chief gathering his bees may be in a sufficiently populous condition for attaining the desired end—that is, getting as big a honey harvest as possible from the pasturage then ready for them. This means consists in artificial feeding by the hand of the bee-keeper, the varying conditions of the weather being always taken into careful consideration.

The second part of the question is, 'Under what circumstances is this most suitably carried on, and when ought it to be omitted?' I think speculative feeding is chiefly to be recommended in those localities which, in the spring, possess either no flora at all, or only a most deficient one; and amongst these must be reckoned my own. In such regions the development of the colonies is particularly hindered, and the stocks, if left to themselves, generally go backwards rather than forwards, because, independently of the too limited rate of breeding, too many bees are lost during their useless foraging, and the pollen so extremely necessary for raising the brood cannot be procured. However richly the autumn provisions have been measured out, the growth in numbers never advances with sufficiently rapid strides unless a suitable pasturage or a stimulus brought about by artificial feeding gives the necessary impulse for increasing the population. Under these deficient conditions the bees maintain but a bare existence till the time of the chief gathering arrives, when, with sore difficulty, they can hardly garner a scanty supply of provisions for their own maintenance, to say nothing of storing a surplus. Had the bee-keeper, however, by rational feeding, given timely assistance to his bees, in most cases, without doubt, the harvest would have richly rewarded him for the trouble and labour bestowed. Truly matters are altogether different in localities which are in every way favourable for bees, where nature of herself scatters the gifts from her cornucopia, and where a more or less abundant pasturage is almost uninterruptedly present. In such advantageous places it stands to sense that speculative feeding is unnecessary, unless now and again abnormal conditions demand it.

The third part of the question is, 'What substitutes are most suitable for this feeding,' &c. Now, gentlemen, in reference to this point, I have carried on very numerous experiments, some account of which I will give you as shortly as possible. As already said, I live in a spot concerning which everyone who pays a visit to my apiary—and I can boast of many such pleasant visits—directly after the first greeting asks me, 'How can you run the risk of carrying on bee-keeping in such a place?' Still greater, however, is the astonishment of my guests when I conduct them to my apiary, and when they see for themselves my stocks equally strong throughout. When I say to these gentlemen, 'This is simply the result of my speculative feeding with milk and eggs,' I meet only too often with simply incredulous surprise, and I have again and again to make good my statement. Such a reiteration is no longer necessary to my particular neighbours opposite, for by the adoption of this mode of feeding they have already secured favourable results of their own: indeed, my friend Fiedler of Otloczyn thus saved his apiary this spring from certain destruction. In former years I attempted artificial feeding with syrup, but soon desisted, because the sulphuric acid it contains quickly gave rise to symptoms of dysentery. Later, according to Mehring's plan, I tried feeding with an infusion of malt. But the fact that this must be prepared daily for the bees, because acid fermentation so soon sets in, induced me to give up a method that robbed me of so much time; and I did this the more willingly because the proportion of nitrogenous ingredient which it contains, and which is so essentially necessary for feeding when the object is to stimulate breeding, is but trifling. I believe, gentlemen, you will agree with me, that together with honey, it is the pollen, the only bee food containing nitrogen, which, besides serving as nourishment to the bees, is the principal producer of new generations. Nitrogen is the builder up of all creatures on the face of the earth, and is furnished to our bees by means of pollen. On the other hand, the honey as a heat-producer must be looked on as a necessary supplementary substance, an aliment of a specific nature. The Baron von Berlepsch makes the statement in his bee-book that in the development and nourishment of the bees, the pollen can only be considered as a medium * for bringing about certain changes, but this is to me utterly incomprehensible from my point of view, which however is only a practical one, for I look upon the honey as playing the principal *rôle* in the nourishment and the pollen in the building up of the body.

During my first tentative examinations in speculative feedings, from a consideration that the milk of mammalia contains all those constituents which are necessary for the progressive nourishment of an animal being, I was further led to the assumption that this would favourably influence both the nourishment and breeding process of my favourites, and induced me accordingly to institute some experiments in this direction. In the spring of last year I selected for this trial two moderately strong stocks to which I supplied the milk, at first only twice weekly, in small doses. Upon the mode of preparing this milk-diet I may remark that at first I dissolved 2 lbs. (1 kilogram) of refined lump sugar in a litre (about 1¾ pints) of freshly milked and boiled cow's milk: that subsequently I altered these proportions, using only 1 lb. (½ kilogramme) of sugar to the litre of milk. It probably would not do to reduce the proportion of sugar to milk below this, because the bees too often refuse the food if there is too small an amount of saccharine matter.

The two experimental stocks fed in this manner, at first twice, afterwards four times weekly, from the middle of the month of May onwards, pollen at the time being quite unprocurable, made such visible advances in breeding compared with other stocks originally stronger, that at the beginning of June I resolved to feed in the same manner thirty more of my hives. This procedure was at the time a necessary expedient, almost indeed for the very existence of my apiary: for on account of the unfavourable and changeable weather, during which the bees had taken their flight to a rape-field half a mile† away, they had become so decimated that they stood in the greatest need of support. The thirty stocks thus fed consumed daily at least 4½ litre of milk, with 4½ lbs. of sugar dissolved in it, until the 20th of June, when the principal pasturage peculiar to my neighbourhood began. According to my occupations I fed the bees at any time of the day that was convenient, because my plan in no

* Destillationsmedium. What is intended is, that the pollen, containing no nourishment in itself, acts as a means for setting up a certain action in the honey by which this is converted into jelly for the grubs. Berlepsch, while looking upon this as the principal use of pollen, does not deny it all nutritious value. *Vid.* 'Die Biene,' p. 135.—C. D.

† Perhaps some one will give us the exact relation of this to an English mile. A German mile, I believe, is more than four English.—C. D.

way disposes to robbery. On this ground I avoid any admixture of honey, and recommend the cheaper sugar.

I might here introduce to you, gentlemen, a most thoroughly trustworthy witness of these facts; for Herr Kehl, of Armstadt, in Thuringin, who is present in this assembly, came to visit me for five weeks last year, and thus had himself the opportunity of observing the very favourable results of my speculative feeding.

One drawback, however, was observable shortly before the beginning of the pasturage; for the bees stored and sealed over in the cells above the brood a portion of the sugared milk not consumed for their nourishment and for brood-raising, which, at the slinging out of the overplus, might easily injure the honey both in appearance and in value. Hence it is advisable that the milk-feeding should not exceed the necessary amount, and that it should cease altogether a few days before the beginning of the main crops.

(*To be continued.*)

FAIRLAWN, SOUTHALL.

It was not a good time for a visit, for although the day was bright and mild, as so many have been this winter, yet Febrnary is not the month in which one would most willingly go on the errand I had in view; but having a few hours to spare, I was sure the visit would not be a profitless one. Well, but what is Fairlawn, and what did you go to see? I am sure it will be heard more of as years roll on, for Fairlawn is the new residence where Mr. Abbott has migrated to, where he is enabled to carry on his scientific culture of bees in a manner and on a scale he has never before attempted; where he will have his school of apiculture, and from whom many a lesson will be learned by all who are interested in the 'wee creatures' which for intelligence have been of late cruelly maligned.

I had visited Mr. Abbott at Hanwell and had learned much from him there, and as he had removed to Southall, and had spoken favourably of the change, knowing him to be a man not inclined to exaggerate, I was sure that I should find it as he had reported, but I was not at all prepared to find so complete and excellent a change. Fairlawn stands on a piece of land of about three acres, and is situated within ten minutes' walk of the Southall station of the Great Western line. The house is a handsome, commodious one, and opens out into a garden well stocked with fruit trees, beyond which is a good meadow with fields stretching far away, and giving a good hunting ground for the little denizens of the garden. Round the garden were bee-hives of all kinds, but, of course, Mr. Abbott's own prize hive predominating. Many were in straw skeps ready to be transferred when the weather was favourable, and Ligurians and native bees and cross breeds were tenanting the homes which will be a scene of busy toil by-and-by. A cursory examination of the stocks showed that they were vigorous, but feeding had not commenced, Mr. Abbott being afraid that the great forwardness of the season would be injurious to the bees if sharp frosts and cutting winds succeeded when the hives were full of brood. Passing from the garden I went to the workshop, where carpenters were busy, and frames, hives, and supers were being manufactured with great rapidity. The sectional supers are destined to take a prominent place, and will probably after a time be those only used, and these were being turned out with marvellous rapidity, and so cheaply that they will come within everybody's reach. The pieces which form the sides of the section are cut so accurately that there is hardly a hair's breadth difference in them, and then the dovetails are punched by a machine so that these must be true, and the four sides can be put together in a minute. Mr. Abbott's own Alexandra super is a very neat and excellent one, and prevents the likelihood of the combs being made crooked. One advantage that these sectional supers have is, that the comb is made in marketable sizes, persons being likely to buy a super of 2 or 4 lbs. who would hesitate about encumbering themselves with one of 12 or 14 lbs., and the difficulty of selling honey stands in the way of profitable bee-keeping. No one could doubt on seeing the busy scene in the workshop that the wooden bar-frame hives are the hives of the future, and when a very decent hive suitable for all purposes of bee-keeping can be turned out for 3*s.* or 4*s.* we may hope that the almost invincible prejudice in favour of the old system may be overcome, and humane bee-keeping take its place.

I hope to see Fairlawn at a more busy bee time, but having seen it now, I thought it might interest lovers of bees to know how favourably one of their teachers is now situated for carrying out his pursuit.—D., *Deal.* (Extracted from the *Journal of Horticulture*, March 22.)

SOME REMARKS.

The Wagner theory, mentioned on page 192 of the *British Bee Journal*, is easily refuted. Take a moveable comb-hive, fill it up only with drone comb, so that there is no occasion for the bees to build anywhere worker comb, put in a swarm with a *fertile* queen, and you will have the satisfaction of seeing that the queen after some time will begin depositing her eggs in the drone cells, and out of them will emerge in due time mostly, if not wholly, *worker* bees. Some years ago there was a Dr. Landois, who came forward with the Wagner theory in the *Bienenzeitung*. To refute him, many German bee-keepers tried the above-mentioned experiment, and all had, to their greatest satisfaction, the same results in the described way. If I do not err, I have read some time ago in an American or French bee-paper of the same experiment leading to the same result.

Referring to the foot-note of the same page, I state that the most experienced German bee-keepers do not doubt that the progeny of fertile workers, as well as of virgin queens, may fulfil the duty for which they were created. Dzierzon and other eminent German bee-keepers advise us to winter one or two virgin queens for having early in the spring sufficient drones to fertilise young queens. A colony with such an old virgin queen will rear very early sufficient drones before the strongest stocks think of it.

In the fall of 1865 I got my first Italian queen, and reared from her, late in the season, some

queens. As the weather was not very favourable, one of these queens was not fertilised, because I found in the next spring she only produced drone brood. Taking it for granted, these drones, according to the statement of Dzierzon and other bee-keepers, would be fit to mate successfully with a queen, I did not disturb this colony, and thought I would make the best of these pure Italian drones. As early as possible I reared some Italian queens, one of which was fertilised, and proved to be a *genuine* Italian queen. The only Italian colony in my apiary, some twenty or more miles in circumference, had, as I can state positively, not a single drone, and I took it for granted the young Italian queen had mated with a drone from the stock with the old virgin queen, otherwise she would have proved to be a hybrid. If it is only possible, I winter one or two virgin queens in my hives. Such a hive is divided in two or three apartments, and in each of them I put a colony with a queen. In the spring I am hunting out one or two queens to requeen some queenless stocks, or to sell them, and then I unite the unqueened one or two colonies to a strong stock with one queen.

The proof that the drone progeny of fertile workers may fulfil the duty for which drones are created, Vogel (the importer of the Egyptian bee) has stated in the *Bienenzeitung*, 1855, p. 95, and in such a plain manner that no one could doubt the fact.

The author of the excellent article, 'Mysteries of the Beehive,' will excuse me for having given my remarks without reserve. I only wish to state what German bee-keepers think of this matter.—C. J. H. Gravenhorst, *Brunswick, Germany, March* 8, 1877.

[Our esteemed correspondent, instead of having 'easily refuted' the Wagner theory, has to our satisfaction clinched the argument (on p. 192) on the question of internal pressure, and only the better proved the whole case.

The eggs deposited in drone-cells by a fertile queen at the head of a swarm, are in our opinion in the same parallel with those deposited by a similar queen in half-formed cells, and only on the presumption that internal pressure forces the eggs into contact with the spermatheca, can the fact of their becoming worker-bees be accounted for.

A queen with a swarm, put into a hive that contains drone-cells only, and no room for the bees to build others, '*after some time*' begins to deposit eggs in drone-cells, most of which develope into worker-bees. To this we agree; but if there had been, say, one comb of *worker-cells* in lieu of one of those consisting of drone-cells only, would not the queen have *immediately* set to work, and have filled it with eggs? and after the internal pressure had been relieved, will anyone assert that other eggs deposited in drone-cells would have become other than veritable drones?

For the correction, as regards the opinion of German bee-keepers, respecting the value of the drone progeny of fertile workers and unfertile queens, we are greatly obliged, and bow to the evidence of one who ought to be the better authority on the subject. We have often tried the Dzierzon experiment of keeping (against our will, too) fertile workers and unfertile queens, and have tried to take advantage of their drone progeny for the pure impregnation of early raised queens; but in no single instance has a successful result been achieved, and although aware that success had been reported in other lands, we held the opinion that normal drones had wintered with the unfertile queens, and that to them was due the desired consummation.—Ed. *B. B. J.*]

SEXES OF EGGS.

The following narrative which strongly corroborates Dzierzon's theory concerning the impregnation of the queen bee, may interest some of your readers:—

One of my hives threw off a swarm in the middle of May, 1875, which was hived in a Woodbury frame hive. The hive was furnished with guide-comb, but was examined at intervals of two or three days, to see that the bees proceeded properly with the formation of the new combs. As is frequently the case, some of the combs progressed too rapidly, and encroached upon the space allotted to the next frames, and these exuberant growths had to be removed. During one of these inspections the queen chanced to receive a rather severe pinch; but as she apparently speedily recovered from the effect of the accident, the hive was closed, and nothing more thought about it. This hive failed most unaccountably to increase in numbers, a circumstance then attributed to the season, which was most unpropitious.

Towards the end of August I was much surprised to find that the hive contained a large number of drones, both great and small. My first impression was that the bees had lost their queen, and that the drones were the progeny of fertile workers. On opening the hive I found some of the frames contained a number of embryo drones in worker-cells, but not a single cell contained an embryo worker. At last I saw a fine queen upon one of the combs so much like the old monarch that I felt sorely puzzled.

Was this a virgin queen? A post-mortem examination proved most incontestably that she had been impregnated, and was without doubt the queen who had led off the swarm. I then recalled to mind the accident she had received, and concluded that the injury she then sustained had interfered with the proper action of her ovipositing apparatus, incapacitating her from bringing the eggs deposited in worker cells into contact with the spermatheca, and thus rendering her incapable of laying any but unimpregnated, *i.e.* drone eggs.

Quite recently I have looked into Siebold on *True Parthenogenesis*, &c. and find that a precisely similar case is recorded by him. The theory which attributes the determination of the sex of the egg to either internal or external pressure seems to be untenable. A queen will lay drone and worker-eggs almost simultaneously. If drone-comb is placed in the centre of the hive during the swarming season, she will lay drone eggs in the drone cells, and female eggs in queen and worker-cells, guided entirely by instinct.* When

* We do not agree with this. Instead of being guided by instinct, we believe that the sex of the eggs is, as a rule, *governed* by the size of the cell. We do not agree that queens ever deposit eggs in royal cells: those

laying in royal cells, or incipient worker-cells, no external pressure can come into operation; and internal pressure could not be suspended, as the queen passed from a royal, or worker, to a drone-cell.—J. E. Briscoe, *Albrighton, Wolverhampton.*

PASTURAGE FOR BEES.—No. II.

Your correspondent, J. H. Eldridge, on page 197, wishes for information about furze as a honey plant; as he has signed his name I send what information I have, otherwise I should not have noticed an anonymous correspondent.

Furze (*Ulex Europæus*) also called gorse and whin.—This is one of our earliest flowering shrubs. It comes in bloom in April and continues flowering for several weeks. From the flowers of this shrub bees collect a quantity of both farina, or pollen, and honey, which is pervaded strongly by the scent of the bloom. I have seen bees very busy at work on the furze from morning to night. There are about 4500 seeds in one ounce.

Broom (*Spartium scoparium*). This shrub has been extolled ever since the days of Pliny, as good pasturage for bees, especially the Spanish broom (*Spartium junceum*), an acre of which would maintain ten stocks. It yields a great quantity of both pollen and honey. A species of broom (*Spartium nubigenum*) growing abundantly in the Canary Islands, renders the Peak of Teneriffe productive of a very pure and transparent honey, of a delicious aromatic taste, and superior to that of Hymettus. Broom flowers in April and continues in bloom several weeks. There are about 3000 seeds of the English broom in one ounce, and about 2000 of the Spanish broom.

Laurustinus.—This shrub, planted in a sheltered situation, blooms during the winter and in the sunny days of early spring, and affords the bees an abundant supply of pollen and a little honey. The Ixora-like trusses of flowers are very ornamental on the plants, and should be in all sheltered gardens.

Box trees of free growth produce quantities of pollen and a little honey. They bloom in April and the bees are very busy working on them.

Holly (*Ilex aquifolium*).—Bees collect a great quantity of honey and pollen from this tree when it is in bloom in May. About twenty years since I was in Lynn church-yard, and walking past some very large holly-trees, the bees were so busy and made such a loud hum that I thought there must be a swarm settling, so I went over the fence to find it, but soon saw it was only the bees in thousands busy at work on the small holly-bloom.*

Hollyberries should be sown in March, but they do not germinate until the second year.—William Carr, *Newton Heath Apiary, near Manchester.*

FURZE AS A HONEY-PLANT.

In the March number of the *Journal* you ask your readers for their experience on the honey-yielding properties of the furze. In this neighbourhood the plant is very abundant in our poor grass fields and waste lands, and is now bursting most beautifully into bloom, but, I regret to say, I never saw 'our pets' (the bees) show any partiality for the golden branches that will now look gay for months to come. As I keep bees I have taken particular notice of this plant, and ofttimes regretted the want of taste (?) in our bees for not showing their appreciation of such a free-flowering plant.—Novice, *Hayward's Heath, Sussex.*

SUNFLOWERS.

I grow quantities of sunflowers for my fowls, and never yet saw a hive-bee upon them. My hives are in perfect order and crowded with young bees. I kept most out of doors this winter, covering them with American cloth, and fixing a thick fringe of straw all round, which kept the rain clear of the hives and boards.—O. O.

POLLEN FEEDER.

Having a large-sized dome-shaped straw skep, I set about erecting it into an artificial pollen feeder, on the principle of M. Pellene's '*mangeoire*,' described in last month's '*L'Apiculteur*,' and which, I am glad to see, you have noticed in 'our *Journal*' this month. In place of laying the flour on shelves inside the skep, as M. Pellene does, I filled the shelves with artificial flowers made of coloured tissue paper, and stuck them into holes bored through the shelves, and fixed with fine wire. In making artificial flowers for bees to collect pollen from, I find it is necessary to put, as gardeners say, 'plenty of heat in them,' by cutting the paper into small narrow strips, and spreading these strips and sticking them inside the cup of the flower. The 'artificial' is scattered among these strips, enabling the bees to '*swab*' it up and have a rest and foothold to pack it on their thighs.

Well, my feeder has been erected now for more than a fortnight, and every fine day it is visited by my own and neighbours' bees in thousands. It

that become queens are first deposited in worker cells, and one of the best proofs is in the fact that though bees will often construct queen cells on drone comb, the larvæ in them never become queens. Our observations on internal pressure (p. 192) were made in regard to queens with actual swarms, and were not in respect of queens with an unlimited quantity of comb at command. Our esteemed friend is perfectly right as regards the eggs in such case becoming drones and workers in drone and worker cells respectively; but at such time the queen's ovaries would not be pent up, as would those of a queen who was waiting for cells to be formed, and consequently there would be no internal pressure. M. Gravenhorst, in another column, proves that a queen with a swarm lays eggs in drone cells which become workers. If *instinct* be the queen's only guide, we should like to know why in a hive that contains an excess of drone comb the queen does not fill it with worker eggs instead of causing the production of myriads of drones, that exhaust the strength of the colony in their production, and impoverish it as long as they are allowed to live? Instinct does not usually cause such mistakes.—Ed.

* *See* observations on the holly, by C. Darwin, p. 194.

was delightful to see how they were enjoying the shelter on some windy days. This feeder beats your plan of the inverted skeps all to sticks. It requires no care or attention to keep the flour from getting wet, or being blown away by the wind. All that is necessary is to fill the flowers as the bees empty them. It is, in fact, the perfection of an 'artificial pollen feeder.'

Except one weak stock, I am not feeding any of my stocks, all having sufficient food till the honey season arrives; yet they are all strong, and have been more or less breeding all winter. I have not in any way disturbed any of them, except by one examination on a fine day in January, yet they are all full of bees, stronger than I have often seen them in May. Of course I cannot resist the temptation of giving them artificial pollen, although I fear the consequence of so much brood if hard cold weather was to come on.

Everybody I meet say their stocks are also strong and full of bees; and is it not a strange coincidence, I find from *L'Apiculteur* that in most parts of France bees are from five to six weeks in advance of what they are usually at this time of the year? Some say they are like the eve of swarming. Such a mild winter and spring has not been known in France since 1827. Meadows are clothed with flowers, and fruit trees in full blossom. *L'Apiculteur* is publishing from month to month a dictionary of apicultural words and glossary of bee terms. Don't you think it a good idea? A Bee-keepers' Compendium in dictionary form would be a good thing, I think, and quite a new thing in the English language.

I am glad you are noticing the way the East of Scotland Society is going to work. We are endeavouring to avoid all party feeling and selfishness in every point under discussion, and doing all things on a broad and comprehensive basis; this secures the confidence of bee-keepers, and will at our shows give the public an interest in the success of our Society.

The Horticultural Society in Arbroath are to give prizes for honey-bees, &c., under the auspices of our Society, and I have promised to support the movement in every way possible. We expect in a year or two that all the horticultural societies in the country will follow the same example. The British Bee Association is an inert body, and the Caledonians are not inclined to be sociable; we are endeavouring to avoid all their weak points, therefore we will go on and prosper; and I should recommend both these associations to unite themselves to us, and be guided and managed by us, and save themselves from becoming defunct.—JOHN STEWART, *Arbroath.*

MEAD.

The inquiry from John Robb in the *Journal* for February elicited a reply from J. T., giving a recipe not for mead but for metheglin, which, as he says, is very good, but only after its kind. Mead, or more properly speaking, sack mead, is made from pure honey, and metheglin is made from the small quantity of honey remaining after the combs have been drained, and as they are soaked in water of necessity a considerable quantity of pollen or bee-bread is dissolved in the water; and this after fermentation gives a sharpness and briskness to metheglin, contrary to the taste of mead, which drinks like a liqueur, smooth and oily.

Having taken the prize at the Crystal Palace Show in 1875 for sack mead exhibited by me, made in the year 1847, I have had many applications for the recipe, which I have of course been happy to supply, although it was attached to the exhibit at the Show; and it may save me some trouble if you will kindly publish it in the *Journal* in reply to Mr. Robb, as well as for the benefit of any other of your readers who may wish to make and taste sack mead.

Recipe.—To each gallon of water add six pounds of honey, the whites of two eggs with the shells broken up; boil over a slow fire, taking off the scum as it rises; when clear add an ounce of hops to the gallon, and boil for one hour. Strain the liquor, and when cooled to lukewarmness add a very small quantity of yeast on a toast; let it work two or three days before being put into a barrel, and when done working bung it down. Bottle after at least one year, if two all the better, as it is extremely apt to break the bottles. It will be very light in colour when first bottled, but the colour will deepen with age.—J. G. DESBOROUGH, 12 *St. Peter's Hill, Stamford.*

OPENING SEASON IN LANARKSHIRE.

The well-furnished condition of stocks in autumn caused our little favourites to tide successfully over the unusually open winter in fine order, playing out in high health, during the few beautiful genial days we were favoured with at the beginning of March, and then collecting greedily large quantities of pease-meal liberally supplied them on the sunny side of the house, sheltered by a sheet of glass placed in a slanting direction, affording easy access or exit at either end.

This capital substitute for pollen I have used successfully for many years, and the school of skepists, who despite this and every step in the onward march will show themselves by 1st April but again *gowks* for a' that, and will be still further behind in the race when that happy time comes dear to every bee-keeper's heart so beautifully depicted by Burns, our national bard, when he sang,

> 'Oh, blaw, ye wastlin' winds, blaw saft
> Amang the leafy trees;
> Wi' balmy gale frae hill an' dale,
> Bring hame the laden bees.'

It is by so sowing in spring that harvests are reaped in autumn. The prudent bee-keeper will, then, not forget the watchword, Be ready. It may be assumed he has on hand a full supply of supers and improved hives, if required for subsequent stocks, necessary to the production of finest honey and comb.

As the enlightened bee-keeper will agree with me that if honey is to be an article for consumption on a large scale, then it must be of the finest quality,

dripped only from super and virgin combs, and that supplying honey from the heterogeneous mass of brood, pollen, and old pollen in combs, will be a thing of the past, and that consumers will eat it with a degree of confidence mingled with pleasure, knowing that it never was squeezed through the dirty hands of the straw skepist. When such is the case, it is a disgusting morsel at the best. As it is a well-known fact, that whenever the slightest particle of pollen comes in contact with honey, or when it has been stored in vacated brood cells (which, as a matter of course, will be, and more so if the theory of regurgitation be accepted, but which is an error), invariably imparts a bitter flavour and unpleasant taste, which can never be got rid of through any process whatever, such being only fitted to be transformed into mead. No doubt chance combs of a second class are sometimes found at the sides of stock hives, but those as a rule according to good management should not be disturbed, leaving them for the bees themselves. Let then all surplus honey be obtained in the natural and profitable way of storing by the bees with the least trouble to them and greatest profit to the master, viz., by supers.

After having given almost every kind of hive a fair trial, I can say with confidence that the hive in which the comfort and safety of the bees are best considered, and from which the largest amount of fine and first-class honey and comb is obtained, is the Stewarton hive. No doubt the frame-hive possesses many advantages over the first-named one, and the Lanarkshire hive is wrought on the same principle. Still there are many bee-keepers who care not for these advantages, being quite content with the horizontal sections, ever at the top of the tree with quantity and quality. I prefer the frame-hive to the Stewarton, seeing that it possesses all and more properties than it, and is no doubt the hive of hives. But the advantages of the last-named one, and to those who adopt it, are, 1st. It is cheaper than any other hive in respect of space. 2nd. It occupies less superficies than any other—a great advantage to many ; are cheaply protected where outside covers are not in the reach of the owners. 3rd. Are so easily adjusted to the season. 4th. Are easily moved about. 5th. They encourage early breeding from their narrow form. 6th. Pollen is never stored in the supers. And 7th. While honey is in the hive during winter they never die for want as it is in the case sometimes with brood hives. Such a hive, then, although not quite to the mind of the more advanced bee-keeper, is, perhaps the one most suitable to the majority of them, the supers from which as yet have never been surpassed.

Now a word as to the health of my hives. Every one has survived the winter ; the only ones showing any signs of dysentery are those that were at the heather. This is my experience for many years now, that bees keep more healthy during winter in dale than on heather honey or sugar. The only casualty that occurred was to one hive early in January, that fine days previously were flying briskly, but which I discovered to be apparently dead, no signs of life appearing, and having a large heap of bees on the alighting board. I immediately collected all and put them inside of the hive, and placed it before a fire, and in three hours after they had consumed nearly three pounds of syrup, so quickly were they resuscitated. Although this hive had evidently almost succumbed through want, it was by no means in poverty, but had apparently taking up its quarters in the farthest side of the hive from the honey after filling, but why did they rush outwards instead of towards the meat, when they would have been saved ? The question may also be put, how long do bees fast between meals ? in this case they were almost past recovering on the fifth day. I ask these questions with the view of information on a point I have never studied much, hoping some one will be able to answer.

The form of the hive is another consideration to prevent deaths in plenty, as I have already shown exists to advantage in the Stewarton, but I depart from them and confine myself to my frame hive. In every case where I admit the bees at one end (I may here state that the mouthpiece in the Lanarkshire is of the whole width, regulated to any point by a slide), the pollen is stored opposite the entrance next the brood with part of pollen, then the honey at the farthest point from the door. This, then, is a point we ought to consider well if there is a possibility in controlling the deposits of the bees by altering the doorway, then this will be a means of preserving the purity of the honey to those who use the Slinger, although, if I understand pollen is not thrown out of the cell, that honey may subsequently be, a bitter flavour is imparted it.—A Lanarkshire Bee-keeper.

FIXING WAX SHEETS.

In answer to 'W. H. J.' as to how I fix wax-sheets in the Lanarkshire hive, I would say there is a false bar which slides in under the top bars of the frames, which is either cut through and the sheet slightly softened is placed in the saw scarf and nailed with wire nails, or a groove is made of the width only to admit the sheet easily, and liquid wax is poured in at either side, and when cool it will be found to be quite firm. In hives I always use the sheets full size (when they can be obtained) reaching to within one inch of the bottom rail, and during the long time I have used such, I have never had more than six cases where a chance sheet has given way, but I incline to have the sheets of extra thickness, which prevents breakdowns and stretching, and I never had a breakdown in a honey box which is similarly treated. I use nothing to strengthen them, nor would I advise anything. Care, however, should be taken when the swarm is admitted that too many bees do not cluster on one part ; and if the weather is very warm, shading or ventilation should be resorted to. My floor-boards are made to slip out and in like a drawer, affording easy ventilation for this. I cannot, however, close this article without describing an excellent plan conveyed to me by an advanced apiarian, J. Buchan-Sydserff, Esq., Ruchlaw, Prestonkirk, who divides the Lanarkshire frame in two by using two false bars instead of one only. This takes off the strain of both sheet and comb, and

gives great facilities for successfully fitting in transferred combs, and adds great strength when manipulating or when in the extractor.—A Lanarkshire Bee-Keeper.

THE OCTAGON HIVE.

With the sentiments and opinions contained in the papers headed 'Introduction or Early History of Bees and Honey,' it is impossible to disagree, seeing they are mostly extracted *verbatim et literatim* from the Introduction to Dr. Bevan's work, *The Honey Bee*.

But when Mr. Carr interpolates his own words and views, and says, 'Gedde was the inventor of the storifying system, and the now called Stewarton Hives,' I feel constrained to protest against the publication of such a fiction, inasmuch as that able and distinguished apiarian, the 'Renfrewshire Bee-keeper,' proved, as clearly as any proposition in Euclid, that Sir Christopher Wren possessed a three-storied octagon hive in 1654, or twenty-one years before Gedde's *New Discovery* was printed, and for which a patent, dated 23 April, 1675, is *alleged* by Gedde to have been obtained.

But who was Gedde? Not Dr. Gedde, but plain 'John Gedde, Gent.' Was he a plagiarist? The passage quoted by Mr. Carr from *The Theatre of Political Flying Insects*, by S. Purchas, is with interpolations (pp. 45, 46) given by Gedde *as his own*.

Was he honest and credible? He put on the title-page of his book, 'Approved by the Royal Society,' and prefixed a long 'Approbation of the Royal Society,' which was neither given nor sanctioned.

Mr. S. White, the inventor of collateral boxes, says (p. 63), 'The reader, therefore, is desired to look upon this pretended approbation as the effect of Mr. Gedde's own vanity and falsehood.' Gedde pretends to have been informed that the the 'illustrious Royal Society of Gresham College had in a transaction' (No. 96, July 21, 1673, vol. viii.) 'given a description of one of my boxes (which they had gotten from Sir Robert Murray, and he had gotten from Sir William Thompson, who had it from me, together with a written description of its parts and use). . . . And that they had approved of the same as the best form of hives yet invented.' By referring to the *Philosophical Transactions* of Gresham College, the paper commences, 'A beehive useful to prevent swarming, and *used with success in Scotland*. Whereof, one sent by a worthy gentleman, Sir William Thompson, may be seen in Gresham College.' As a description of the construction of this hive and its figure still exists. I may furnish it if desired; but in the *Phil. Transactions* Gedde is *not* acknowledged as the inventor, nor deemed worthy of being mentioned by name.

The gentleman to whom Sir Christopher Wren gave (in his letter, Feb. 26, 1654) a description of his three-storied hive, published observations on this hive to the effect that 'all bees laden with honey prefer working downwards instead of upwards, and that he prefers only two stories, and taking away the lower one when full, and replacing it with an empty one.'—Questioner.

EARLY DRONES.

I enclose you in a small box a drone bee I caught on the wing to-day, March 18, in my garden, as I never saw a drone so early in the spring in this district, which is 1100 feet above the level of the sea. I cannot account for the same. All my hives are very strong, and appear to have got over the winter first-rate. The hives are what you supplied me with last season, and are all covered with old carpet four or five thicknesses.—T. W. B. *Buxton*.

[The drone sent was one that had been bred in a worker-cell, and is either the progeny of a fertile worker or unfertile queen (so called), or, being the progeny of a fertile queen, the egg, on being deposited, had passed the spermatheca without coming into contact with the fertilising spermatozoids contained therein, as described in 'Mysteries of the Bee-hive,' in the March number of the *British Bee Journal*. We have received other specimens of drones, and a section of the comb in which they have been reared, which, with its scattered, elongated cells, has struck the owner with surprise.

We would caution amateur bee-keepers to examine thoroughly every stock in which 'early drones' appear, and any which do not contain normal worker-brood may safely be considered under the sway of a fertile worker or unfertile queen.—Ed.]

UNUSUALLY EARLY APPEARANCE OF DRONES.—WHAT DOES IT INDICATE?

I shall be glad to have your opinion on the above subject. The following are the particulars which call for it:—I was yesterday watching my bees, in the middle of the day, when the sun was shining warm and pleasant after a night of sharp frost, and was attracted by what seemed to be the sound of a drone on the wing. This I could hardly credit until I satisfied myself of the fact by observing three in succession come out from, and return to, one hive, and by catching the last, so as to leave no room for doubt. I did not proceed to examine the hive (a Sibertswold one), as I might have done, because it is, like the rest of my hives, still in its winter wrappings—a sheet and blanket as I call them, but in your phraseology a quilt—and I consider it too cold to disturb them yet; so I wish you to tell me whether you consider this early appearance of drones a *good or bad omen*, and whether there is anything you would advise me *to do* in consequence.—

[The appearance of drones at this very early date indicates a state of things which may be one of either of the following:—

Firstly.—The stock may be highly prosperous, and, stimulated by feeding or by ingathering from some unusual source, and having drone comb near the centre of the hive, may have produced drones as a natural result. This condition we think improbable.

Secondly.—The original queen of the hive may have died, and her successor may have failed to mate with a drone, and consequently has remained a drone-breeder. This condition of things does not often exist, the dangers attending the wedding flight (in these cases oft repeated and prolonged) generally causing the loss of the queen, except when, through some deformity, she is unable to fly, and, falling to the ground, is obliged to crawl back into the hive, where she remains unimpregnated.

Thirdly.—The queen may have died, and her successor have been lost, as above suggested, or she may have died at a time when—there being no eggs or larvæ in the

hive—the raising of a new queen was impossible; and a worker bee may, in a state of 'exaltation,' have commenced ovipositing, and the drones would in such case be her progeny. This is the most probable condition of the colony, so-called 'fertile workers' being much more common than is generally believed, and the remedy is a doubtful one at this season, as those '*pests*' are in no way different from other bees, and cannot be distinguished, and, being very nimble, they are usually victorious in their combats with queens newly introduced. Uniting such bees to other stocks is dangerous, as they might kill the queens in them, and at such early date new queens are not readily procureable.

It would be interesting to try the experiment (supposing our surmise to be correct) of queen-raising, to test the value of the drones so produced; and to do this a small hive should be placed with comb, containing eggs and brood in it, on the stand of the stock in question, and the stock removed to another part of the garden; all the combs should then be taken out (save those which contain the drone brood, amongst which the fertile worker will be), and the bees should be brushed off them and into the hive. The majority will then go straight home to the old stand, and the fertile worker will be gradually deserted, and will eventually become the prey of robber bees. The 'nucleus' hive in the mean time, having received the bulk of the population of the unfertile stock, will, when some of the brood has hatched (for unless young bees be present the raising of queens is problematical) proceed to queen-raising, and then the question of the value of the drones under notice may be further ventilated.

There are one or two other *possible* 'conditions' in which the hive under notice may be found; to wit, it may have become queenless in autumn, and the drones having been (on that account) 'permitted,' may have continued; or a fertile queen may have, through some accident, deposited eggs that have not received the fertilizing influence of the drone, as explained in another column. Whatever may have so unwholesomely conduced to drone-existence in the hive at this uncanny time, it will be advisable to at once inspect it, and further insight into its mysteries will enable us to hit off the proper remedy.—Ed.]

INTRODUCTION OR EARLY HISTORY OF BEES AND HONEY.

(*Continued from page* 201.)

Maraldi, in 1712, published his first edition of his work on bees. He was the first to invent a glass hive, in which the indoor proceedings of the bees could be seen, and his description of the manners, genius, and labours of the bees, which was published in the Memoirs of the Royal Academy of Sciences in 1712, this gave a wonderful stimulant to the study of bees. Maraldi was the first to measure the angles of a bee's cell. He was struck with the fact that the three lozenge-shaped plates forming the base of a bee's cell always had the same angles, so he took the trouble to minutely measure them, and found that in each lozenge the large angles measured 109° 28′, and the smaller 70° 32′, the two making 180 degrees, the equivalent of two right angles. He also noted the fact that the apex of the three-sided cup was formed by the union of three of the greater angles, 109° 28′.

Some time afterwards M. Reaumur, thinking that this remarkable uniformity of angle might have some connexion with the wonderful economy of space, which is observable in the bee-comb, hit upon a very ingenious plan. Without mentioning his reason for the question, or telling him of Maraldi's researches, he asked Kœnig, the celebrated mathematician, to make the following calculation:—'Given a hexagonal vessel terminated by three lozenge-shaped plates; what are the angles which would give the greatest amount of space with the least amount of material?'

Kœnig made the calculations, and by employing what geometricians denominate the 'infinitesimal calculus,' he found the large angles should be 109° 26′ and the smaller 70° 34′, or about two-sixtieths of a degree, less or more, than the actual angles made use of by the bees and measured by Maraldi.

Mathematicians were naturally delighted with the result of the investigation; for it showed how beautifully practical science could be aided by theoretical knowledge, and the construction of the bee-cell became a famous problem in the economy of nature.

In comparison with the honey which the cell is intended to contain, the wax is a rare and costly substance, as the bees consume about one pound of honey to make one ounce of combs. The wax is secreted in very small quantities, and requiring much time for its production; it is therefore essential that the quantity of wax employed in making the combs should be as little, and that of the honey contained in it as great as possible.

For a long time these statements remained uncontroverted; any one with the proper instruments could measure the angles for himself, and the calculations of a mathematician like Kœnig would hardly be questioned. However, Maclaurin, the well-known Scotch mathematician, was not satisfied. The two results very nearly tallied with each other, but not quite; and he felt in a mathematical question precision was a necessity. So he tried the whole question himself, and found Maraldi's measurement correct, namely, 109° 28′ and 70° 32′. He then set to work at the problem which was worked out by Kœnig, viz. 'What ought to be angles of a six-sided cell with a concave pyramidal base, formed of three similar and equal rhomboid plates, so that the least possible matter should enter into its construction.' Maclaurin found the true theoretical angles were 109° 28′ and 70° 32′, precisely corresponding with the actual measurement of the bee-cell.

Another question now arose. How did this discrepancy occur? How could so excellent a mathematician as Kœnig make so grave a mistake? On investigation, it was found that no blame attached to Kœnig, but that the error lay in the book of logarithms which he used. Thus a mistake in a mathematical work was accidentally discovered by measuring the angles of a bee-cell. A mistake sufficiently great to have caused the loss of a noble ship and the lives of all its gallant seamen, whose captain happened to use a copy of the same logarithmic tables for calculating his longitude. All honour due to Maraldi, Reaumur, Kœnig, and Maclaurin.—William Carr, *Newton Heath Apiary, near Manchester.*

(*To be continued.*)

WEIGHT OF HIVES

The weather has continued open; bees are occasionally on the wing, and return laden; snowdrops, crocuses, violets, daisies, &c., are in bloom; hedges are breaking into leaf; rain falls almost daily. The following is the account of consumption for four hives the past month :—

Date weighed	Gross weight	Floor-board and Hive	Nett	Date	Nett	Date	Nett	Consumption per Month.
	lbs.	lbs.	lbs.		lbs.		lbs.	lbs.
1876	47	15	32	1877	27	1877	24½	2½
Oct.	42	18	24	Jan.	17	Feb.	13½	3½
10th	55	21	34	19th	32½	19th.	25½	7
	50	17	33		27½		24	3½

—T. H. B., *Sleaford, Jan. 19th,* 1877.

CERTIFICATES FOR EXPERTS.

Will you be prepared to grant certificates to such pupils at the School of Apiculture as pass a proper examination in the anatomy, physiology, and natural history of the honey-bee, and in practical bee-keeping? The examination could, of course, be partly by papers and partly *viva voce.*—A Would-be Scholar.

[We think this should be the work of a committee of recognised experts. It formed part of the original programme of the British Bee-keepers' Association, but no action was ever taken on the subject.—Ed.]

A CHANCE FOR WESTERN BEE-KEEPERS.

In the last number of the *Journal* attention was called to the fact that the Bath and West of England Agricultural Society intend to hold their next meeting at Bath in June, and that it would afford an excellent opportunity for a Bee Show. The 'Queen City of the West' will be unusually gay and interesting on the occasion referred to, and her visitors will be numbered by tens of thousands. Moreover, a large proportion of those who go to the Exhibition will be more or less connected with rural life. This is just the class we want to interest in bee-keeping, inasmuch as they have the best opportunities for conducting an apiary with pleasant and profitable results.

The close connexion between agriculture and apiculture is too well known to our readers to render it necessary to dwell upon the subject, and the occasion of such a grand gathering as is confidently expected at Bath is eminently calculated to bring bee-culture before the public in its most practical and promising aspects.

Will any of the bee-keepers in Somerset, Gloucester, or Wilts, form a committee for the purpose of getting up a Show?

Probably the Council of the Society referred to above would afford all requisite facilities if they were communicated with at once. If not, the Hanoverian Band Committee, whose Flower Shows are so well known, may feel inclined to take the matter in hand, provided some one will set the ball rolling of communicating with the President or the Secretary.

The inhabitants of the fair city of Bath love novelties, and as a Bee and Honey Show has not yet been held there, it could not fail to be attractive. The facilities afforded by direct communication with the Great Western, Midland, South-Western, and Somerset and Dorset lines of railway, would enable bee-keepers of all the Western shires to take exhibits to the Show with ease, while the local demand for the luxuries of life would probably cause many a fine set of well-stored supers to find a ready sale.—A Somersetshire Bee-keeper.

SYRUP.

Allow me to thank the correspondents who have so kindly replied to my query about the crystallisation of syrup. Their kindness makes me feel that all apiarians are not so savage as those who have been fighting 'The Battle of the Hives' in the columns of a contemporary, and that some of us, at any rate, are willing to join in a kind of Mutual Improvement Society.—Bee-Keeper.

LECTURES.

A correspondent suggests that gentlemen of experience, who deliver lectures on bee-keeping (as several have recently done), would confer a boon on hundreds of readers if they would publish their lectures after they have been used; or, at any rate, such portions as embody their practical knowledge of the subject.

BEE BOOKS.

The letter from Mr. Alfred Neighbour, which appeared in the February issue, contained an incidental reference to his excellent and extensive library of books on bees and bee-keeping. Scores of others would probably be as glad as I should if that gentleman would publish a list of them.—Reader.

INDIAN BEE-KEEPING.

You have asked me to let you know something about the habits of bees in this country. I am sorry that my information is very limited. Although I hear that the hill men that live at a distance from European habitations keep them, I have never seen their mode of doing so. The swarms of bees are very plentiful—that is, wild ones. In July last I had to leave my bungalow for the purpose of it being re-roofed. When the men took off the old roof they found a nest of them, and an enormous amount of honey.—G. Watson, *Lanawar, near Kussowlee.*

Discovery of Honey.—A large tree was blown down near Newton House, Yeovil, last week, and in a cavity of the trunk about two bucketfuls of honey were discovered. Some of the comb was quite 4 ft. long. It appears that several years ago a swarm of bees settled upon the tree, and no doubt it has been the abode of successive stocks since that time.—*Western Gazette.*

Foreign Intelligence.

FRANCE.

The Minister for Agriculture and Commerce has given instructions to the effect that during the current year copies of the *Rucher*, the advocate *par excellence* of the moveable bar-frame system in France, may be sent to him, to his high functionaries, and to the principal schools of agriculture, horticulture, &c., throughout the country.

The *Rucher*, on entering the new year, says that during the past four years of its existence its motto to its subscribers has been 'Instruct yourselves;' but now that they are fairly instructed, it is to be, 'Learn still, and make a profit.'

The same journal announces the intention of opening, during next summer, special classes on apiculture for ladies only, should a sufficient number of them signify their wish to attend.

ITALY.

It is thought probable that the 3rd National Congress of Italian Bee-keepers may be held at Turin.

A new model apiary for experimenting and the practical teaching of apiculture was opened in Turin early in March.

Echoes from the Hives.

Market Harborough, March 15th, 1877.—'For goodness sake see *Journal of Horticulture* of to-day (March 15th), and there learn that bar-frame hives are out of it as far as means of internal examination go. Pettigrew can look through twenty-two skeps and ascertain that they have no pollen in them (nor bees nor combs I suppose).' —R. S.

Wolverhampton, March 14th.—I want another Cottage hive, the same size as the one I had last year; otherwise it will be of no use to me, as I want to case it and transfer my frames into it. What sort of state the bees are in I shudder to imagine, and I have not been able to inspect yet. The hive has stood in its bare simplicity all the winter, except that it has had a good quilt at top. When you give directions as to what to do with hives at particular seasons, would it not be well to remind us from time to time that you write for London and the south? I expect we are quite a fortnight behind you here, and further north the difference must be greater still. Thoughtless people (if any bee-keepers are thoughtless) may be thus led into mistakes about the proper time for commencing stimulative feeding,' &c.

Marlow, March 17th, 1877.—'I was rather surprised to receive a visit from a drone bee this morning. However, there he was, quite lively on the kitchen window. We have seen the queen in nine out of my fifteen hives quite lately when putting on the feeding-stages; and the bees are taking pollen into all the other six. We hope to examine five more during the fine breaks of sunshine. The other is a Neighbour's Cottage Straw Hive—the fabulous price of *1l. 17s. 6d. without* stand: it is a regular ladies' hive, and looks pretty. The only way I can account for the drone is the extreme prosperity of a hybrid stock, which has begun drone-hatching early. We have not seen the queen yet; but they take pollen in, and are fearfully strong, and like little lions or worse. We have seen brood in every one of the nine hives examined.' —W. R. S.

Market Drayton.—I have so far wintered my fifty stocks successfully by the use of the quilt, all appear to be healthy and remarkably strong, most of them having several bars of brood, and for this reason will require careful watching; for owing to early breeding and consequent consumption of food, a spell of bad weather in April or May would prove fatal to many if not supplied with food. The six queens you sent me are fast changing the colour of their stocks, having been introduced to black bees condemned to the sulphur pit.—B. H.

Darlington.—'Please forward the *Bee Journal* on April Fool's Day. The other night I had a very funny dream. I was at Fairlawn, Southall, inspecting the apiary, and behold I saw a queen-bee peeping out, and she said to her children, "There is something wrong here; I cannot, and will not, stand it any longer; there is no safety." The children joined in, and said, "We have been thinking the matter over, and if Mr. Abbott will not make us secure we will fly at him and sting him." And the queen-bee said, "So we will. I will lead you on, and we'll pepper him, give him the small-pox; and then we will fly away to Mr. Pettigrew's apiary, where there are loads of honey and everything correct." But when I awoke I found it was a dream. This has made my mind uneasy, and I would request that you write to the King of the Egyptians, and request his chief butler to interpret it. If that gentleman should fail to explain the matter, your humble servant will send you an *ultimatum*. Please say in your *Journal* why you make the Standard frames and hives wider at top than at bottom? I was at the Bee Show in September, but had not the pleasure of an introduction, but hope we shall meet some day. I have ten hives, eight in straw; one is suffering from dysentery, and the others are weak in bees. I am making nine hives similar to the one you sent me, but I find it a long job. Hoping you will interpret this correctly, I remain yours respectfully, J. Baker.'

[Note.—The dream we will leave to be interpreted as our readers think well; the query is answerable at once. A frame smaller at the bottom than at the top will, when '*lifted* from its position,' gradually recede from the hive-walls by which it is bounded. A familiar illustration of this may be found in the conical sugar-papers used by grocers; when packed within each other they are almost solid, but each, when *lifted*, finds plenty of 'play.' And with the tapering hive-frames, raising them puts them further from the hive-sides, and prevents the 'mangling' of bees which usually takes place when frames parallel with the hive-sides are lifted 'straight up.'—Ed.]

Bishop's Stortford.—'I am afraid my straw hives are too full, they are as heavy as they were in the autumn (40 lbs. less hive and board), nor do I yet see how to get the honey out of the bar-frame hives to make room for breeding, the honey being now at this season so thick. Can you suggest any plan? All my hives have wintered well with the quilt of old print and drugget in lieu of wood. I expect those that are not so heavy will do best this season.'—G. T.

Ifield Vicarage, Crawley, March 9th, 1877.—'A neighbour of mine had rather a curious case. He was going to take his hive on the old smotheration plan, when, on lifting up the hive, he found that some wasps had built their nest in the hive, and also that the bees were in it and some honey also. The bees and wasps must have lived a good time together for the wasps to have had time to build their nests there. Can anyone give me an explanation?'—R. B.

Stockport, Cheshire.—'Will you please send me the six Leaflets mentioned in the *British Bee Journal*? The list comprises:—Transferring, Feeding, Ligurianising, Driving, Hiving in Bar-frame Hive, Making Artificial Swarms. I am a new beginner in bee-keeping, I think they would suit me, for amongst bee-keepers out here we have no practical knowledge. I have tried to get half-a-dozen, at *4s. 6d.* each, to form a club, but I cannot get any to join me; all are in the old school and won't come out.'—J. C.

Wolverhampton.—'The hive I had from you last year, (costing *6s. 6d.*), I opened on Saturday, and found it in wonderful order considering that it has been exposed to

all weathers without any additional protection except a good felt quilt on the top. There was a little mould on one comb. I found brood in all stages, but not to a very great extent. Plenty of stores: two whole frames of honey untouched, though bored near the top for passage of bees.'

Redditch, March 10th.—'As I have just began bee-keeping, and wish to get all the information I can, will you kindly oblige by sending one dozen of your Leaflets, for which I enclose six stamps? I have begun taking in the *British Bee Journal*, and find it contains a lot of useful knowledge. At our place they suffocate the bees, but I want to get to the supering system, instead of killing the bees. Any information you can give me will be thankfully received.'—T. C. H.

Dorset.—'Season highly promising so far. In all probability our county Association will hold a Show at Sherborne on Wednesday, August 29th, and another at Dorchester during the same month.'

Auchinraith.—'Bees are getting a protracted spring now, notwithstanding the open winter we have had; they appear to have been close upon their stores, more so than I ever saw them.'

Somerset.—'At present everything gives promise of a favourable season for bee-keepers. Stocks appear to be healthy, strong, and breeding rapidly.'

Queries and Replies.

Query No. 203.—Ligurians v. Blacks—Uniting Queen.—Having read a good deal about Ligurian bees, both in favour of and against them, I am desirous of giving them a fair trial side by side the common black bee. When the swarming season arrives, I am thinking of purchasing a pure Ligurian queen, and taking an artificial swarm from an ordinary common straw skep, or from one similar to it, in which the combs are *fixed*, by removing the said skep and putting a Carr-Stewarton I had from you, which was one stock box full of empty straight comb built in the bar-frames in its place, and allow the bees which are abroad at the time, and others from the hive removed to form an artificial swarm. As you are ever ready to render assistance and give good, sound advice, will you kindly say in your next *Journal* the best and easiest way of introducing her majesty, what length of time ought to elapse between fixing the hive and introducing the queen, and whether there is likely to be any difficulty in endeavouring to establish a new colony with an Italian queen at its head?

Will you please send me a set of your Leaflets, for which I enclose two stamps.—Novice, *Sheffield.*

Reply to Query No. 203.—The queen of the stock to be moved should be given to the swarm that is to be formed in the Carr-Stewarton hive, and the Ligurian queen united to those left in the skep, which will be all young bees, and more likely than the others to accept her. She should be encaged in a small tube of wire or perforated zinc having a cork stopped at one or both ends, and the cage should be thrust upwards between the combs and amongst the brood and bees. Forty-eight hours afterwards she may be released, and as a rule she will be safely accepted. Two stocks thus formed, though side by side, can scarcely be considered 'a fair trial' of the respective merits of Ligurian *v.* black bees.—Ed.

Query No. 204.—Supering.—In the February No. of the *British Bee Journal*, in your reply to a query, No. 189, you say—'When placing supers on the hive, we remove the quilt and *set them* (the supers) *on the frames.*' May I ask, if you use Lee's prize supers, or similar supers, *how in this case you contrive to prevent the queen from ovipositing*, and thus introducing brood into the super? The bees in my six hives seem strong and healthy, having wintered well, thanks to your suggestions, under a layer of cheesecloth and several layers of house-flannel. I have sixteen hives altogether.—Richard Parker, *Fareham, Hampshire.*

Reply to Query No. 204.—We have always advocated that supers of all kinds should have bottom boards of their own, otherwise the bees build their super-combs down to the bars or crown-boards of the hives, and their removal causes breakage and bleeding from the bottom cells. If the said bottom boards have slots in them towards their sides and plenty of breeding space in the body of the hive, there is little danger of the queens going up and breeding above them. Before supering the chief of the honey in the stock-hive should be extracted, and a superabundance of drone-comb removed, its place being filled up with worker comb. The want of sufficient breeding cells in the stock-hive is the great cause of breeding taking place in supers.—Ed.

Query No. 205.—Will you oblige by answering in your next number the following queries? I left a strong stock in a common straw skep for the winter. On examining it the other day I found it completely deserted; about a dozen dead bees on the floor-board, and the combs dry and all honey gone—it had swarmed in the summer and was standing next the new colony in the apiary. What was the cause? 2nd. I see by your remarks that you do not recommend feeding yet. Will they apply to a hive which I keep in a conservatory, and which is consequently in a warmer temperature than those outside? 3rd. I wish to move my bees from where they are at present to an orchard; the distance would be only twenty yards, but the other side of a wall. When would be the best time to do it? and would I be likely to lose many bees? 4th. What do you recommend as a cheap and simple covering for wooden hives?—A. Thompson, *Howleigh House, Wellington, Somerset.*

Reply to Query No. 205.—The supposed strong stock was evidently queenless and fell a victim to stronger neighbours. The young queen, which came forth after the departure of the swarm or swarms, was probably lost on her wedding trip, and as a consequence (there being no eggs or larvæ in the skep from which a new queen could be raised) the stock dwindled and came to grief. These cases are of constant recurrence, and plainly show the necessity for the adoption of moveable-comb hives, so that the presence or absence of a queen may be readily determined. The temperature of a hive in a green-house would probably induce early breeding if feeding were practised, but the losses caused by the outside cold would be much greater than ordinary, because the heat within and the feeding would deceive the bees as to the temperature outside, and many would rush out and perish, as they do when deceived by sunlight and snow.

Query No. 206.—Observatory Hive.—1. Will $1\frac{1}{2}$ inches be the right width of the inside of an observatory hive?

2. The Quilt.—Would bed-tick or American cloth be sufficient to cover the hives when I take off the winter quilt, as I intend doing away with the crown-board altogether? I am satisfied now that with the quilt I can winter my bees in hives of nearly *all glass*, and mean to make half a dozen at once. Thanks to you for past information, &c.

Reply to Query No. 206.—1. Yes.

2. Bed-ticking will answer the purpose well if flannel or carpeting be laid on above it to prevent the loss of heat. American cloth being impervious, would be worse than the wooden crown-boards. The efficacy of the quilt is due to its porousness, which permits the *escape* of the vapours of the hive. If confined by any impervious covering the vapours will condense, and the whole of the quilt material will become wet and mouldy.—Ed.

NOTICES TO CORRESPONDENTS & INQUIRERS.

GIRDWOYN ON THE ANATOMY OF THE BEE.—This work is published by M. Rothschild, 13 Rue des Saints-Pères, Paris; the price is 25 francs. It is invaluable.

BAR FRAMES.—The bar-frames offered by Mr. Lee of Bagshot, in advertisement, at 1*s.* 6*d.* per dozen, are the original Woodbury frames. Those of a size to fit *his* hive are 1*s.* 9*d.* per dozen. Our standard frames with widened ends are 2*s.* 6*d.* per dozen. Any one taking twenty dozen of our standard frames will have a frame-block included without further charge, so that all the frames shall when made be of the correct size and shape.

C. H. E., having lately received an instructive and interesting circular from Capt. P. E. Martin, relating to the 'Sailor's Bee-hive,' is anxious to obtain more information of the King's Somborne Apiary. Will the Captain have the goodness to send an account of his apiary to our *Journal*, viz. How it is laid out? what shrubs or trees are found best for their early and late blossoms that are good for bees? also, the trees (if any) most preferred by bees to swarm upon? Any other interesting and practical detail would be gladly welcomed by C. H. E., who proposes establishing an apiary in the North of London, but before doing so is anxious to ascertain the best-known means of laying it out, &c. Will other bee-masters kindly give their ideas, in detail, of how a model apiary should be arranged, and the necessary buildings, &c., it should contain? The size of the pieces of land it is intended to devote to the 'Model Apiary' is nearly one acre.

T. SWINBURNE.—The specks of mouldiness will disappear when the strength of the colony has increased and the bees take possession of the outer combs. There is no cause for alarm. As the colony increases more combs will be required, and the vacancy in the hive will be rapidly filled. When the weather is milder, the bees more numerous, and comb-building natural, it would be well to take an empty frame from the unoccupied side of the hive, and put it on the other, moving all the combs one degree therefrom. The building of a comb by a strong colony is only a question of a day or two, and the insertion of an empty frame in the busy part of a strong hive is sure to induce it. Such a measure must not, however, be taken during cold weather, or the bees may desert one side through being divided and unable to maintain the requisite heat. You cannot do better than continue the slow feeding of syrup, and the liberal supply of artificial pollen. *Swarms* that have to *build* all the comb in a hive often yield supers in their first year, so that, with such a start as yours have, there is little to fear on that head.

A. THOMPSON.—*Moving Bees.*—At this season moving bees twenty yards only would be dangerous, as many would be lost, and a hive losing its heat-producers would suffer greatly. We would recommend you to wait for swarming time, and then, when swarms have issued, set them—the latter in place of the old stocks, and put the old stocks on their new stands. In the evening of the same day remove the swarms also, and 'the apiary' will have been removed without loss. The principle is this:—The swarm having been set on the old stand, all the flying bees will come back to it and will have joined the cluster, and if placed on their new stand at night they will detect the change of quarters in the morning, and, as is in the nature of swarms, will adopt the situation.

A. T.—*Cover for Cheap Wooden Hives.*—We know of nothing better than a light wooden roof, similar to that illustrated in our Catalogue.

JAMES SHEARER.—We think it desirable, both sides having had an opportunity of ventilating their opinions, to close the correspondence.

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No.

382 'The Best Management of Bees,' fully illustrated, by Samuel Bagster; also 'Practical Bee-keeping.' The two books delivered free only 4*s.*

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384 25 lbs. of best Super Honey in frames, also best extracted Honey in 7 lb. jars. Offers wanted.

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388 Pure Virgin Honey-comb, in wooden and glass supers, from 5 to 30 lbs. weight. Price according to quality. S. F. Clutten, Whittingham Hall, Fressingfield, Harleston, Norfolk.

390 Offers requested for Honey, and Heather Honey-comb. Durham.

391 For Sale.—A beautiful glass Super of finest Honey-comb, weight 7½ lbs. 11*s.* Hampshire.

393 For Sale.—A quantity of Phacelia, Borage and Melilot Seed, in 6*d.* and 1*s.* Packets, 1*d.* extra for postage. Also a lot of strong Plants of Melilot, 1*s.* per dozen to any address, free to nearest railway station from vendor.

394 For Sale.— Forty Vols. of the Naturalist's Library, First Edition, in good order and original boards (covers). Price 10*l.* 10*s.*

395 The Alsace Bee-Keeper for 1876 (Der Elsassische Bienen-Züchter), clean and unent, price 5*s.* each.

396 For Sale.— Surplus Nursery Stock of strong Melilot Clover Plants, 9*d.* per dozen, 5*s.* per 100, or 2*l.* 5*s.* per 1000, carefully packed and put free on rail. Address J. Silvester Hooker, Epsom, Surrey.

397 Wanted.—Vol. II. of *British Bee Journal*, bound or unbound. Apply to Editor.

398 Wanted.—Vol. I. of *British Bee Journal*, state price to E. S. Kent, Stratford Tony, Salisbury.

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406 Wanted.—Stocks of Black Bees in Straw Skeps; also to bespeak Swarms. Electro-plate at Manufacturer's prices offered in exchange.

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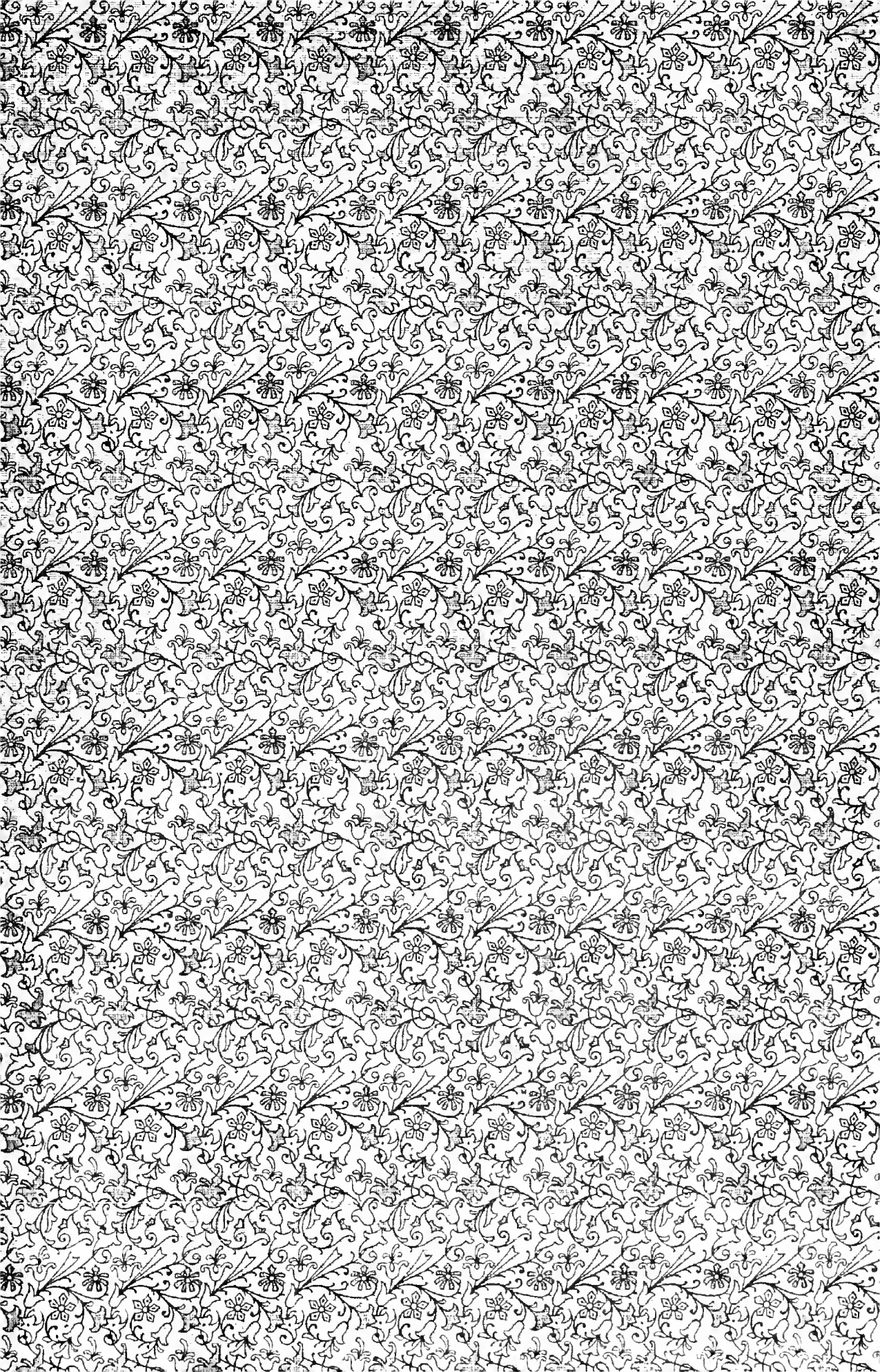
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